

Sound level meter **DB 300/2**



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I – Introduction

The DB300 sound level meter is an acoustic measurement instrument with main features of a conventional and integrating-averaging sound level meter and analyser with storage.

With its memory, DB300 sound level meter stores measurement datasets. Then they are transferred to a computer and processed through LDB23 software.

According to international standards, sound level meter calculates and displays on its graphical backlight LCD-screen values used for a fast and complete study of the noise environment.

To simplify and make nice its use, 5 measurement modes have been preselected :



- **Mode 1 : conventional sound level meter and average-integrating with storage**



- **Mode 2 : integrating-averaging sound level meter – A and C weighted**



- **Mode 3 : integrating-averaging sound level meter – A and C weighted and analyser by octave bands filters from 31.5Hz to 8 kHz with storage**



- **Mode 4 : analyser sound level meter for the measurement according to the NR curves (as per NF S 30-010 standard)**



- **Mode 5 : Sound level meter “calculator” of two sound sources**

In the different modes, in addition to measured values, the sound level meter can display :

- results for a better definition of the acoustic environment :
Maximum and minimum values, peak values, statistics distribution of measured levels
- indications required for the proper validation of the measurement :
Presence and percentage of overload input stages, duration of the measurement
- other information :
Battery autonomy, remaining measuring capacity

Start or stop a measurement are very easy to perform :

Directly with the keyboard in instantaneous mode or scheduled later

or

With an automation (I/O plug)

The sound level meter also communicates with an automaton through I / O plugs :

- 0-10 V DC analog output
- Control bit activated as per pre-programmed threshold
- Threshold detection for external alarm

II – Vocabulary

The terms and abbreviations listed below will be used throughout this user manual.

L-Leq : represents the measurement mode : conventional and integrating-averaging. Values are measured simultaneously.

Leq-St : represents the measurement mode : integrating-averaging sound level meter with storage function. The equivalent continuous sound level on the logging time (DI) is stored into the memory.

1/1 oct : analyser integrating-averaging sound level meter with storage function and with filter by octave bands

NR : mode to measure noise level of machines or installations according to NR curves.

S1+S2 : denomination for measuring or calculating the levels of 2 sound sources.

LXeq : X-weighted equivalent continuous sound level on the logging time or on the total time of the measurement.

LXeqM : Maximum X-weighted equivalent continuous sound level on the logging time, on the total time of the measurement.

LXeqm : Minimum X-weighted equivalent continuous sound level on the logging time, on the total time of the measurement.

LXE : X-weighted sound exposure level.

LXY : X-weighted acoustic pressure level ; time weighting : Y

LXYmax : Maximum X-weighted sound pressure level ; time weighting : Y

LXYmin : Minimum X-weighted sound pressure level ; time weighting : Y

LUpK -LUpKmax : U-weighted peak sound level – maximum U-weighted peak sound level.

DI : Programmable logging time for the calculation of the equivalent continuous sound level stored into the memory, also called : elementary integration time.

X : **generic marking** for standardized frequency weightings, A - C – Z or filters by octave bands (L, Leq, LE values)

U : **generic marking** for frequency weightings, C or Z standardized (Lpk values)

Y : **generic marking** for time weightings with : « **F** » for Fast, « **S** » for Slow or « **I** » for Impulse.

Man : manual mode of measurement launching

I/O : Launching mode of the measurement controlled by I/O plugs.

SXXX : order number of the measurement sessions. Limited to 999.

RST : reset of calculations of maximum or minimum values memorized – erasing of measurement session or of the whole memory.

Sto. : storage of measurement session into the memory.

S1 : name for measuring or calculating the equivalent continuous sound level of a first sound source.

S2 : name for measuring or calculating the equivalent continuous sound level of a second sound source.

S1+S2 : name for measuring or calculating the equivalent continuous sound level of the two sound sources.

00/00:00:00 : format of the measurement time in Days/hours:minutes:seconds

00/00:00 : format of the measurement time in Days/hours:minutes

00:00:00 : format of the measurement time in Days/hours:minutes:seconds or format of the current time

18/11 : format of date

00:00 : format of current time in hours/minutes

Pond. : A, C or Z frequency weightings

Cte : time weighting or time constant : Fast – Slow - Impulse

S/S : integration time controlled in Manuel mode : **Start/Stop**

C.CI : free field correction term in calibration mode.

Corr. : corrective term of nominal benefit in calibration mode.

L01 – L10 – L50 – L90 – L95 : Normalised statistics distribution, used in environmental studies

III – Presentation of the sound level meter

III 1 – Overview



The back of the instrument contains a battery compartment door, a threaded hole for mounting on a tripod, a location for the nameplate and a location for the calibration label.

III 2 – Presentation of the screen-keyboard group

The **screen/keyboard** group gives to the instrument a modern ergonomy. It mainly participates to the quick familiarization of the sound level meter.

A press, a touch or a very light finger slipped on keyboard icon is enough to trigger the corresponding action of the sensitive key.

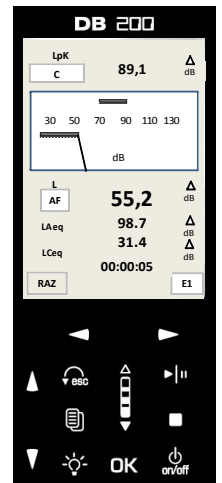
The **measurement configuration** is made by moving a reversed video cursor in reserved areas, then by choosing the concerned parameter or function.

For instance :

- Time weighting and time constant selection : **A or C** and **Slow, Fast or Impulse**.
- Selection of measurement mode

Reserved areas appear according to two 3D type formats :

- **Inner shadow to the frame** : simulates a shifted back area in which parameters can be modified or displayed measurement results.
- **External shadow to the frame** : simulates a shifted forward area in which different propositions of the menu can be chosen to go to an other configuration or validation screen.



A push on each arrow moves the cursor on the horizontal left-right axis.



A push on each arrow moves the cursor on the vertical up-down axis.



Scrolling knob key : increases or decreases suggestions in the area according the principle of front or back circular permutation. The finger must slide from an arrow to the other one, simulating a scroll wheel action.

From the bottom to the top to increase or from the bottom to the top to back to the previous proposal.



Validate a suggestion or an action to lead present in an outer shaded frame.



Go to the main menu to return to the previous screen.



Exit a menu screen to return to the previous screen.



Launch a measurement, then pause it if necessary.



Finally stop measurement.



Enable-disable the backlight.

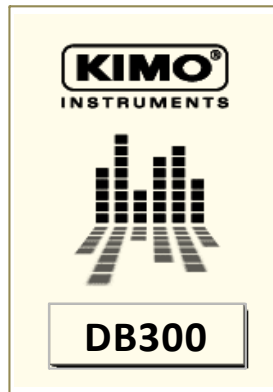


On-Off

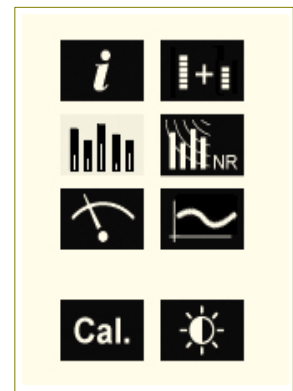
III 3 – Screens overview



Press **On-Off** key



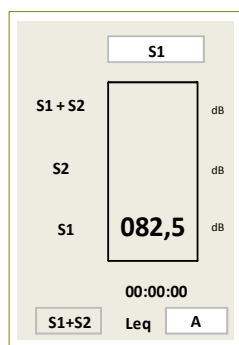
Press **OK**
on the **DB300**
pictogram in
3D : the main
screen appears.



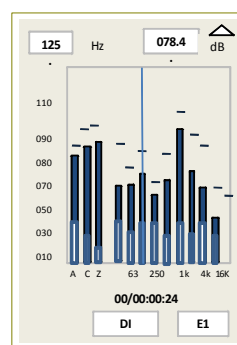
Move the cursor on the icon corresponding to the required menu that becomes reversed-video, then press **OK**.



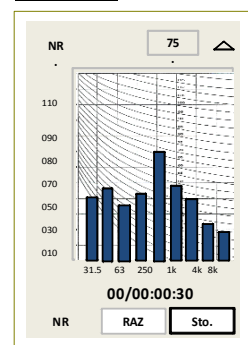
General information
about the instrument



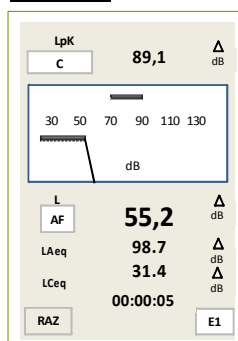
Amount-difference
between 2 sources



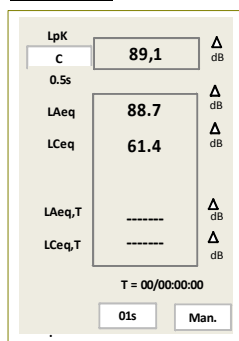
Analyser with storage
function by octave bands
31.5Hz _ 8KHz



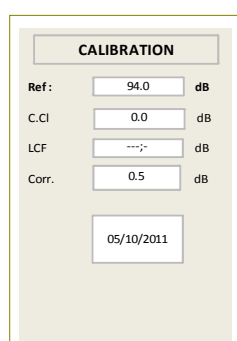
Measurement of
sound of installation:
NR curves



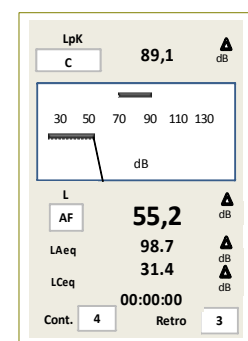
Conventional sound level
meter and integrating-
averaging mode



Integrating-averaging
mode with storage : A and
C weightings



Calibration





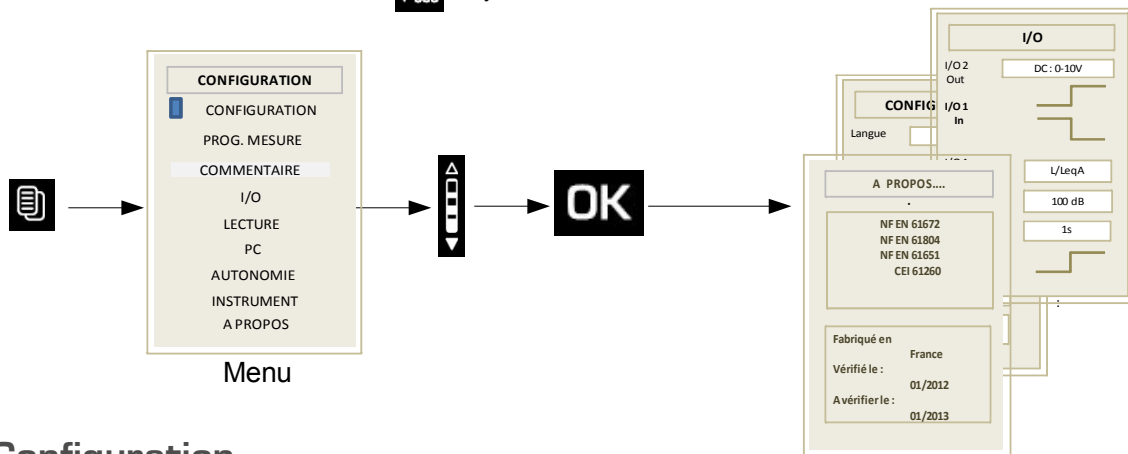
Set contrast and
backlight




: Back to selection screen.

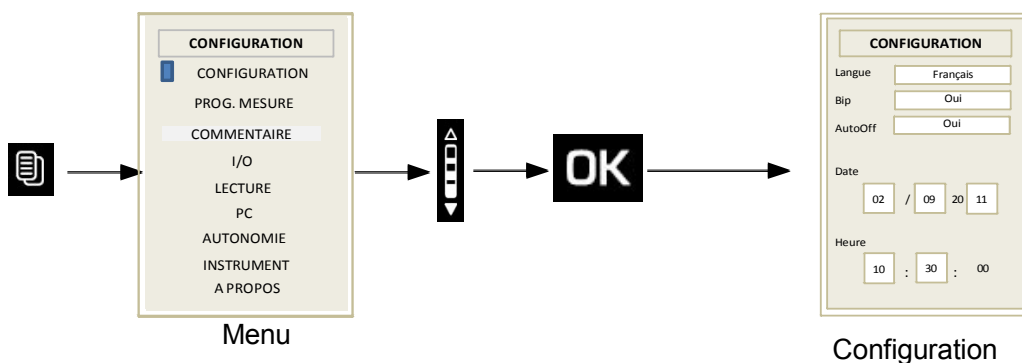
IV – Setting

From the  key a screen lists the different settings or information about the instrument.
To have access to one of those screens, scroll with the scrolling knob key and validate with **OK** key.
To quit each screen and back to main menu, use  key.




IV 1 – Configuration

This screen allows configuration for some functions. To have access to those functions :
Press  key then choose **CONFIGURATION** with the scrolling knob key and **OK** key to validate.



From this screen, use arrow keys to move the cursor in the desired area and modify with the scrolling knob key the proposition.
Various parameters to adjust are :

- **Lang.** : user language : **French** or **English**.
- **Bip** : the presence or absence of tone when pressing a key. The beep disappears by itself if it interferes with the measurement.
- **AutoOff** : yes or no. If yes is selected, the instrument will stop after 15 min of non-use. This disposal allows to save battery if there is no measurement launched.
- **Date / Hour** : Set date and time

To return to main screen, press  .

IV 1 -1– Set time

From “**Configuration**” screen, use the arrows to move the cursor in the date/time area.

Date : the cursor is put successively with the arrows on days, months and years then use the scrolling knob key to select the correct number.

Time : setting time must be done by comparison with a reference clock, for example, the speaking clock. The simultaneity must occur at the beginning of the minute when the seconds display 00 of the reference clock.

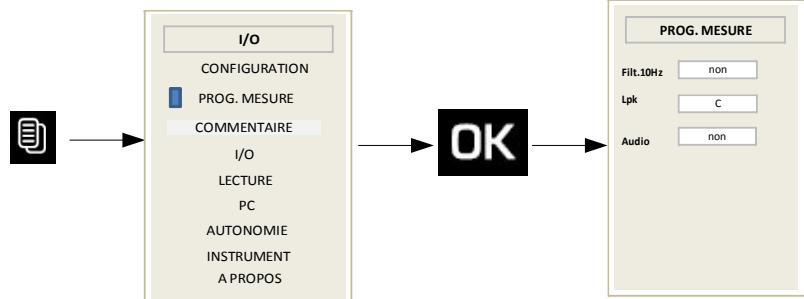
Proceed as follows :

- Move the cursor from date to hour, a 3D **OK** appears.
- Adjust hours then minutes and validate with OK key when the reference clock is at 00 second.
The 3D OK disappears.

To back to main screen, press .

IV 2 – Measurement programming

From “**MENU**” screen, use the scrolling knob key to move the cursor in the **PROG.MESURE**. area then press **OK**. Then move the cursor and make a selection a for each parameter.

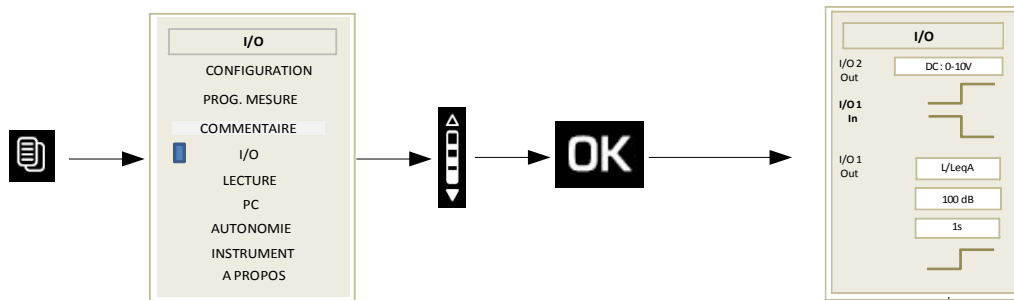
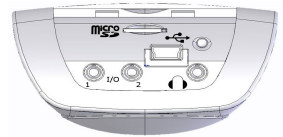


This screen allows to set the following parameters :

- **High pass filter 10Hz** : it preferable to activate it in order to avoid overloads of low frequencies of the input stages of the sound level meter before digital processing. Use example : when there are strong wind movements in the environment, roads, rail, doors opening or closing in rooms etc...
- **C or Z** weighting for the measurement of the peak pressure level
- **Audio recording on threshold** : if this function is activated, more parameters are displayed on the bottom of the screen (see page 44)

IV 3 – I/O

The I/O input/output allows to connect 2.5 mm jacks. It is located at the bottom of the unit behind the rubber breastplate.



I/O 2 out : DC continuous analogue output : 0-10V for connection to a recorder or industrial controller.

I/O 1 in corresponds to the **input** for the launch and stop measurement from an industrial controller and is for **Leq-St – 1/1 oct – NR** measurement modes. Launching of the measurement is made for a continuous high level and stopping the measurement is made for a continuous low level.

I/O 1 Out corresponds to the **detection output** compared to a preset sound level and is for **L- Leq-St – 1/1 oct** measurement modes. A high level appears in output when the sound peak pressure level reaches and exceeds a certain value.

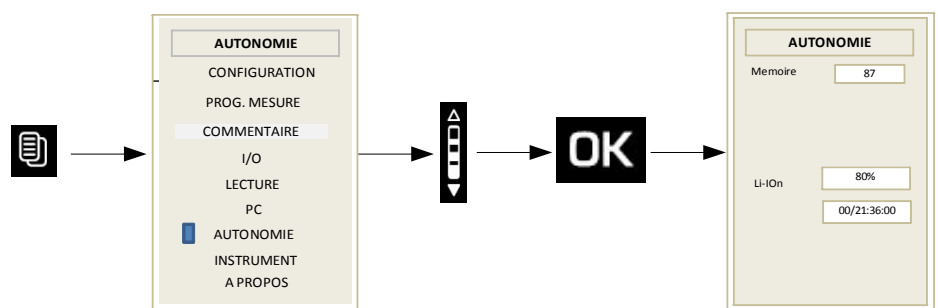
For this type of output, the following items must be configured :

- The level type: choose L, Leq or LPK depending on the mode of measurement.
- Programming with scrolling knob key the desired level of detection by 1 dB steps.
- Set a timer for maintaining the continuous signal detection after sub-overshoot sound level (from 1s to 10s by 1s pitch).

IV 4 – Autonomy

Autonomy provides information on the remaining memory capacity and allows time measurement according to the chosen method of measurement.

The measurement time is calculated automatically based on the remaining memory capacity. It is immediately compared to the remaining capacity of the power system : batteries, battery or AC adapter.

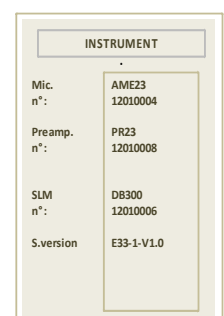


Menu

IV 5 – Instrument

This screen reminds main components of the sound level meter :

- microphone and its serial number
- preamplifier and its serial number
- sound level meter housing
- version number of the firmware.



IV 6 – About

This screen shows the various European standards and the accuracy class of the instrument. It also specifies the date of the last checking and remains the next one.

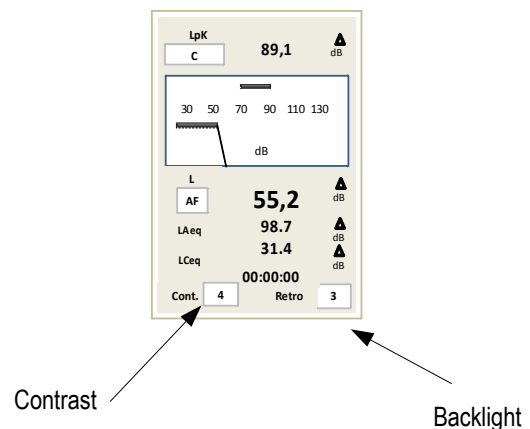


IV 7 – Contrast - backlight

- From starting screen, select icon  and press **OK** to validate.


To optimize reading of the display, from this screen :

- Position the cursor on **Cont.** and adjust the contrast by choosing with scrolling knob key a level from 1 to 7.
- Position the cursor on **Retro.** and adjust backlight by choosing with scrolling knob key a level from 1 to 3.



V – Perform some measurements


V1 – Conventional and averager integrator sound level meter with storage function

Select **L-Leq mode** : move the cursor with arrow keys on icon  then press **OK**.

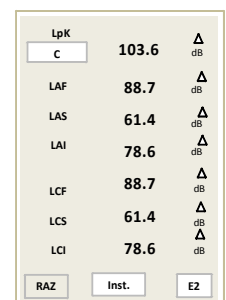
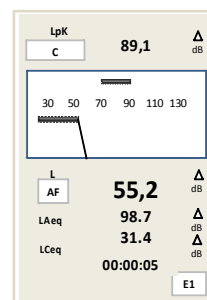
V1-1 : Conventional or classical mode

The measurement is immediate, yet it is interrupted and reset with each change. The sound level meter processes the sound pressure signal and displays simultaneously the following information on E1 and E2 screens.

- **LXY** : sound pressure levels weighted temporally
- **LXYmax and LXYmin** : maximum and minimum values of sound pressure level since the beginning of the measurement.
- **LUpk** : maximum peak level of sound pressure.
- **09:16:50** : current time

Info : Integrating-averaging mode starts only after pressing  pictogram.

LAeq and **LCeq** values are integrated on 1/16s in conventional mode for instantaneous information, the timer remains at zero.



V 1-2 – Possible selection for the measurement

1 – Select the weighting frequency and the time constant in direct visualization on the analog indicator with hand.

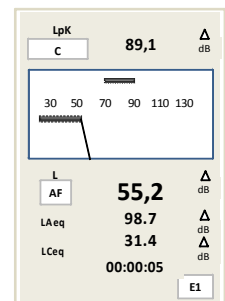
For each time weighting, the sound level meter proposes the measurement according to 3 time constants : Fast (F) - Slow (S) – Impulse (I). Possible selections are :

A-weighting : LAF – LAS – LAI

C-weighting : LCF – LCS – LCI

Place the cursor with arrow key on the area **1** and select with scrolling knob identified measurement criteria among the possibilities listed above.

1



2 – The selection of the frequency weighting for the sound peak pressure level **C** or **Z** is performed in the main menu “**PROG.MESURE**”.

3 – During measurement, two actions are possible :

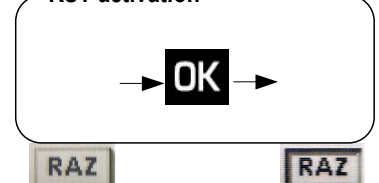
- Reset the memorized levels, mainly the peak pressure level **LCpk**
- Go to **E2** screen to read the different values : instantaneous, minimum or maximum values.

4- To reset all the values :

Press **OK** key, **RST** function is activated and is about :

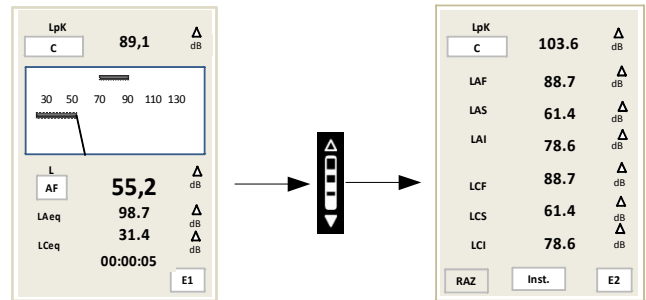
- Maximum and minimum sound pressure levels available on **E2** screen
- The maximum peak pressure value and the linked bargraph
- Overload information

RST activation



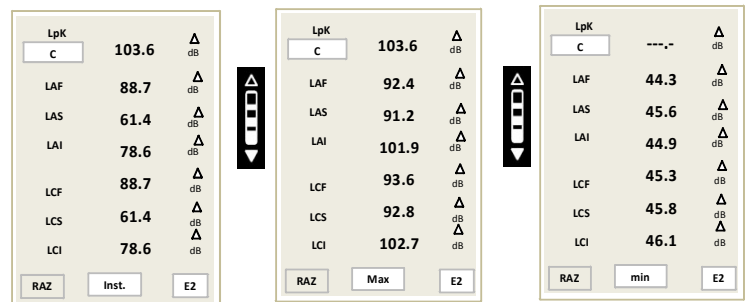
V 1-3 – Screens during measurements

1- From **E1** screen, press the scrolling knob key to display **E2** screen.



2- Move the cursor with the arrows on the item **1** and select with the scrolling knob key among :

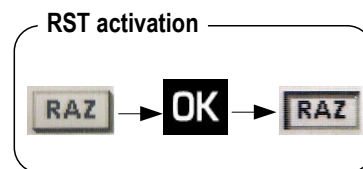
Inst. - Max – min to read instantaneous, maximum and minimum values of **LXY** sound pressure levels.



3 – To reset all the values :

Press **OK** key, **RST** function is activated and is about :

- Maximum and minimum sound pressure levels
- The maximum peak pressure value
- Overload information



V 1-4 : Conventional and integrator-averager with storage mode

The integrator-averager mode completes the conventional mode always active (read above). It allows to specify an acoustic situation indicating simultaneously :

- The instantaneous, maximum or minimum sound pressure levels : **LXY**
- The equivalent continuous levels : **LAeq** and **LCeq**
- The maximum peak pressure level : **Lcpk**
- Measurement duration : **00:00:05**

Main data are stored at the end of the measurement in order to get a usable file by the software supplied with the instrument.

To start this mode :

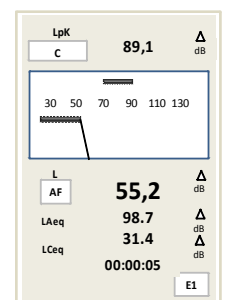
- Press key.

LAeq and **LCeq** values are indicated, the timer indicates the measurement duration instead of time.


Note : **RST** function is not available anymore in this mode.

During measurement :

- It is possible to watch E1 or E2 screen with the scrolling knob key (also for conventional mode).

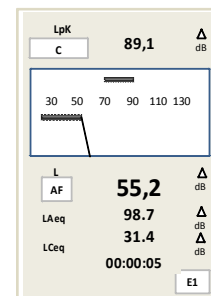


V1-5 – Screens during measurements

During measurement, **three screens** inform the current measurement. They are accessible through the scrolling knob key .

E1 : it is the main screen that displays the instantaneous measurements :

- **LXY** : sound pressure level temporally weighted according to the selection
- **LAeq** : equivalent continuous level of sound pressure **A**-weighted on the measurement duration
- **LCeq** : equivalent continuous level of sound pressure **C**-weighted on the measurement duration
- **LUpk** : maximum peak level of sound pressure on the measurement duration
- **Measurement duration** in HH:MM:SS

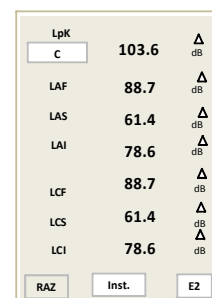


E2 : This screen contains results of values that will be stored in memory at the end of measurement :

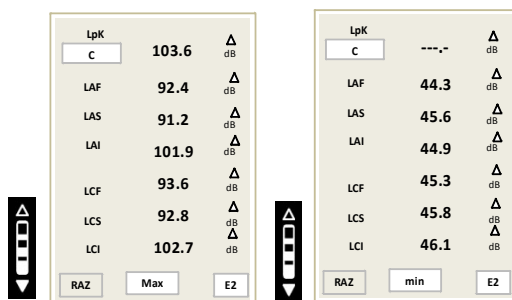
- **LUpk** : maximum peak level of sound pressure on the measurement duration
- **LXY Inst.** : instantaneous values of sound pressure levels temporally weighted met since the beginning of the measurement
- **LXYmax** : maximum value of sound pressure level weighted temporally met since the beginning of the measurement.
- **LXYmin** : minimum value of sound pressure level weighted temporally met since the beginning of the measurement..

To see these different results :

- Move the cursor with arrows keys on the item **1** and select with the scrolling knob key :
Inst. - Max – min to read instantaneous, maximum and minimum values of sound pressure levels **LXY**

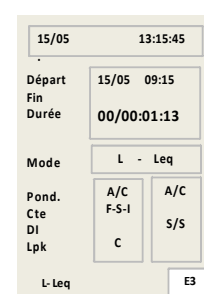


1




E3 : this screen reminds the general format of the session of measurement :

- **Start** : date of measurement start
- **End** : date of measurement end (here, not entered because measurement is still ongoing)
- **Duration** : measurement duration (here, on going)
- **Mode** : measurement mode (here, L - Leq)
- **Pond.** : Frequency weightings
- **Cte** : time constant
- **S/S** : Integration mode Start/Stop
- **Lpk** : frequency weighting of the peak pressure level



V1-6 – Stop the measurement

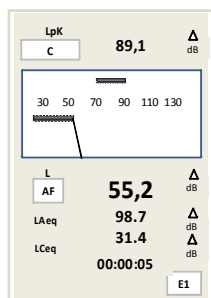
- Press  key to stop the measurement.
- Validate with **OK**.



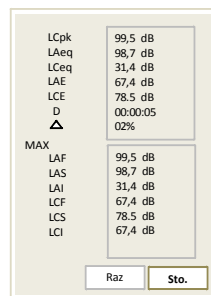
V 1-7 – Store data

At the end of the measurement, a screen of all results is displayed. It is then possible to :

- Accept measurements and store them : move the cursor on **Sto.** and press once on **OK** key to confirm. A banner displays the storage phase.



Ongoing measurement

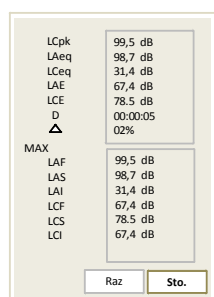


Results screen

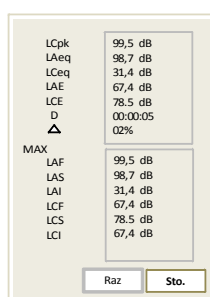


Storage

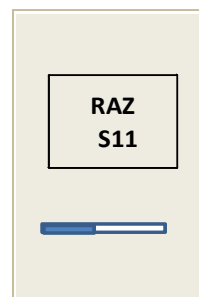
- Reject measurements and not store them : move the cursor on **RST** and press **twice** on **OK** key to confirm. A banner displays the phase of suppression of data.



Results screen




RST active



Deletion

V 2 – Sound level meter and averager integrator with storage function

- Select **Leq-St** mode : move the cursor with the arrows on the icon  then press **OK**.

The sound level meter processes the acoustic signal for each elementary integration time and stores results in a saved memory.

Measured and stored data for each integration time :

- **LAeq, DI** : equivalent continuous level of sound pressure on the elementary integration time.
- **LCeq, DI** : equivalent continuous level of sound pressure on the elementary integration time.
- **LUpk** : level of maximum peak of sound pressure on the elementary integration time.
- **Measurement duration** in JJ/HH:MM:SS

Integration time :

Data storage is made according to logging time (DI) to choose from : **1/16s, 1/8s, 1/4s, 1/2s, 1s, 2s, 3s, 5s, 10s, 15s, 30s, 60s**.



In order to have permanent control of the sound pressure level before the launch of measurement, the sound level meter calculates and displays the equivalent continuous level of acoustic pressure on a logging time of 0.5s.

V 2-1 – Setting to perform before a measurement

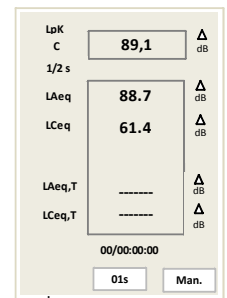
1 – Select the frequency weighting of the peak level of sound pressure C or Z : see **PROG.MESURE** in the main menu.

2 – Select the logging time (DI) :

Move the cursor in **1** and select with the scrolling knob key among : **1/16s, 1/8s, 1/4s, 1/2s, 1s, 2s, 3s, 5s, 10s, 15s, 30s, 60s**


3 – Select the mode of measurement start in **2** with the scrolling knob key among : **Man** (manual) – **Tim** (timer) – **I/O** (with I/O signal)

Info : current time is displayed before launching measurement



1 2

V 2-2 – Launch the measurement

In **manual** mode : press  key, the timer starts and indicates the measurement duration.

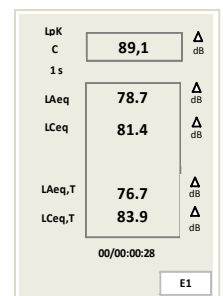
Timer and I/O modes : see page 51

V 2-3 – During measurement

During measurement, three screens give information about the current measurement. They are accessible with the scrolling knob key.

E1 : it is the main screen that displays the instantaneous measurements :

- **LAeq, DI** : equivalent continuous level of sound pressure on the elementary integration time.
- **LCeq, DI** : equivalent continuous level of sound pressure on the elementary integration time.
- **LAeq,T** : equivalent continuous level of sound pressure A-weighted on the current measurement duration.
- **LCeq,T** : equivalent continuous level of sound pressure C-weighted on the current measurement duration.
- **LUpk** : level of maximum peak of sound pressure on the selected integration time.
- **Measurement duration** in JJ/HH:MM:SS



E2 : this screen displays the results of values that will be stored in the memory at the end of the measurement.

- **LUpk** : level of maximum peak of sound pressure on the measurement duration.
- **LAeqM** : maximum value of the equivalent continuous level of sound pressure A-weighted of all the logging times.
- **LAeqm** : minimum value of the equivalent continuous level of sound pressure A-weighted of all the logging times.
- **LAeq** : equivalent continuous level of sound pressure A-weighted on the whole measurement duration.
- **LAE** : level of noise exposure A-weighted.
- **D** : measurement duration in JJ/HH:MM:SS
- **%** : saturation percentage of the input stage
- **Statistics indices** : L01 – L10 – L50 – L90 – L95. They are calculated from stored samples.

LCpk	99,5 dB
LAeqM	98,7 dB
LAeqm	31,4 dB
LAeq	67,4 dB
LAE	78,5 dB
D	00:01:30
Δ	02%
L01	95,4 dB
L10	75,9 dB
L50	68,1 dB
L90	45,6 dB
L95	33,2 dB

1

To access to the same results for the C-weighting :


- Move the cursor in **1** then select **C** with the scrolling knob key.

E3 : this screen remains the general format of the measurement session :

- Date of measurement start
- Date of measurement end : not entered because measurement is still ongoing.
- Measurement time : not entered because measurement is still ongoing.
- Measurement mode : Leq-St
- A and C frequency weightings for Leq : **Pond.**
- Elementary integration time for Leq in second : **DI**
- Frequency weighting of the level of pressure peak : **Lpk**
- Audio recording on threshold : **Audio**


15/05	13:15:45
Départ	15/05 09:15
Fin	
Durée	00/00:06:52
Mode	Leq-St.
Pond.	A-C
DI	1s
Lpk	C
Audio	non

V 2-4 – Stop the measurement

- Stop the measurement pressing .
- Press **OK**.



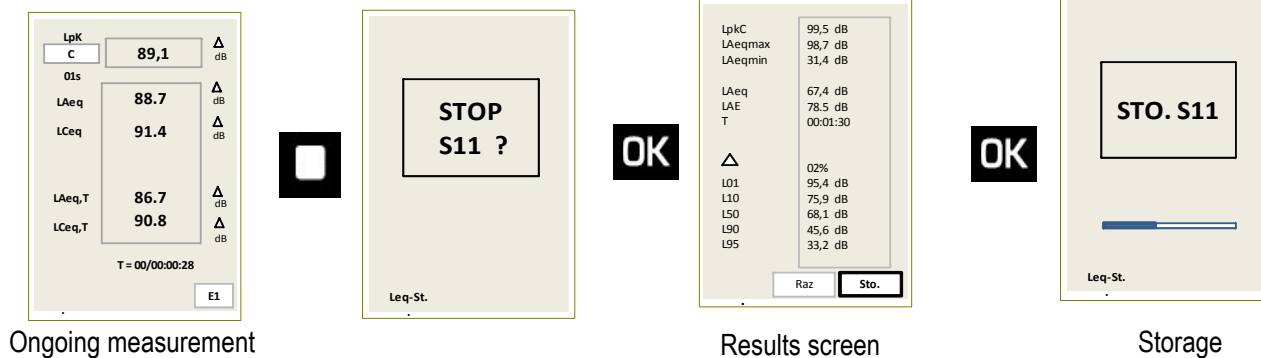
Note : When **STOP ?** is displayed, it is possible to press  key to back to measurement screens and keep going.

Note : It is not possible to stop the measurement as long as the first logging time (ex : DI=60) is not completed. Pressing  key will be inoperative.

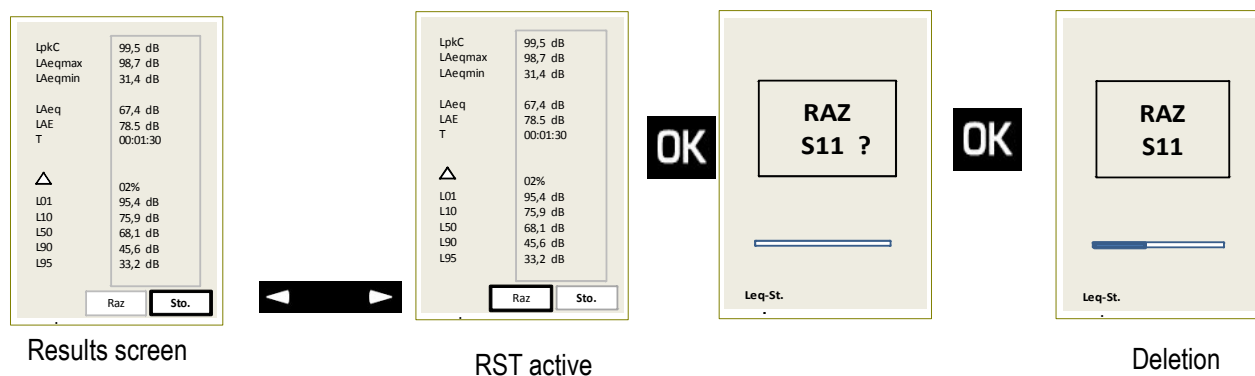
V 2-5 – Store data

At the end of the measurement, in manual mode, a screen of all results is displayed. It is then possible to :

- Accept measurements and store them : move the cursor on **Sto.** and press once on **OK** key to confirm. A banner displays the storage phase.




- Reject measurements and not store them : move the cursor on **RST** and press **twice** on **OK** key to confirm. A banner displays the phase of suppression of data.



Timer and I/O modes : data storage is automatically made without intervention

V 3 – Analyser integrating - averaging with storage sound level meter function

- Select **mode 1/1 oct** mode : move the cursor with the arrows to  then press **OK**.

The sound level meter runs as a frequency analyzer and processes the acoustic signal according to the temporal mode :

- On a T(D) measurement duration with data storage for each DI elementary integration time

Measured and stored data for each integration time :

- **LAeq, DI** : equivalent continuous level of sound pressure on the elementary integration time.
- **LCeq, DI** : equivalent continuous level of sound pressure on the elementary integration time.
- **LXeq, DI** : equivalent continuous level of sound pressure on the elementary integration time filtered by octave bands from 31.5 Hz to 8 kHz
- **LU_{pk}** : level of maximum peak of sound pressure on the elementary integration time.
- **Measurement duration** in JJ/HH:MM:SS

Integration time :

The data storage is made according to an integration time DI to select : **1/16s, 1/8s, 1/4s, 1/2s, 1s, 2s, 3s, 5s, 10s, 15s, 30s, 60s**.



In order to have permanent control of the sound pressure level before the launch of measurement, the sound level meter calculates and displays the equivalent continuous level of acoustic pressure on a logging time of 1/8 s.

V 3-1 – Settings to perform before the measurement

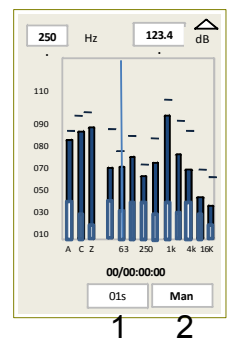
1 – Select the DI logging time :

- Move the cursor in 1 and select with the scrolling knob key among : **1/16s, 1/8s, 1/4s, 1/2s, 1s, 2s, 3s, 5s, 10s, 15s, 30s, 60s**.


2 – Select the mode of measurement start in 2 with the scrolling knob key among : **Man** (manual) – **Tim** (timer) – **I/O** (with I/O signal)

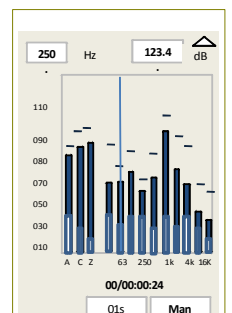
Timer and I/O modes : see page 51

Info : current time is displayed before launching measurement



V 3-2 – Launch the measurement

In **manual** mode : press  key to launch the measurement with elementary data storage according to the selected integration time (1s for example), timer starts and indicates the duration.



V 3-3 – During measurement

During measurement, three screens give information about the ongoing measurement. They are accessible with the scrolling knob key.

E1 : it is the main screen, it displays values and graphical representation (spectrum type) :

The different bars stand for :

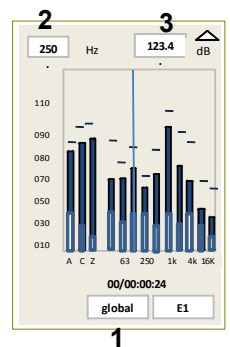
- **LAeq - LCeq - LZeq** : equivalent continuous levels of sound pressure A, C and Z-weighted
- **LXeq** : equivalent continuous levels of sound pressure filtered by octave bands from 31.5Hz to 8 kHz
- Measurement duration in JJ/HH:MM:SS

Read values :

- Move the cursor in **1** with the arrows and select among **DI - global - Max - min**
- Move the cursor in **2** with the arrows and select with scrolling knob key the value of weighting or filter and read the result displayed in the box 3.
A vertical line is moving on the screen and superimposes on the bar corresponding to the selected weighting or filter.

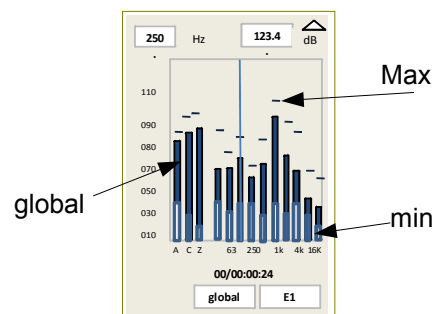
Do the same to read the different values according to the selection in **1** : **DI - global - Max - min**

- **DI** : equivalent continuous levels weighted and filtered for each DI logging time (01 s for example)
- **Global** : equivalent continuous levels weighted and filtered of the ongoing measurement
- **Max** : maximum equivalent continuous levels weighted and filtered reached since the beginning of the measurement (base : DI logging time)
- **Min** : minimum equivalent continuous levels weighted and filtered reached since the beginning of the measurement (base : DI logging time)



These different values are shown as :

- An horizontal line for the maximum level
- A full colored bar for the global level
- An empty bar for the minimum level

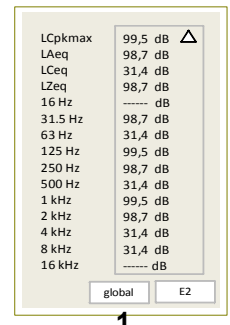


E2 : this screen displays the results of current values that will be stored at the end of the measurement.

- Move the cursor in **1** with the arrows and select with the scrolling knob key among **DI - global - Max - min**

Read the different values according to the selection.

- **DI** : equivalent continuous levels weighted and filtered for each DI logging time (01 s for example)
- **Global** : equivalent continuous levels weighted and filtered of the ongoing measurement
- **Max** : maximum equivalent continuous levels weighted and filtered reached since the beginning of the measurement (base : DI logging time)
- **Min** : minimum equivalent continuous levels weighted and filtered reached since the beginning of the measurement (base : DI logging time)





E3 : this screen remains the general format of the measurement session :


- Date of measurement start
- Date of measurement end : not entered because measurement is still ongoing.
- Measurement time : not entered because measurement is still ongoing.
- Measurement mode 1/1 oct : **Mode**
- Filters by octave bands from 31.5Hz to 8kHz : **F**
- LReq logging time : **DI**
- Frequency weighting of the peak pressure level : **Lpk**
- Audio recording : **Audio**

15/05 13:15:45	
Départ	15/05 09:15
Fin	-----
Durée	-----
Mode	1/1 oct.
F	31.5Hz--8kHz
DI	1 s
Lpk	C
Audio	non
E3	

V 3-4 – Stop the measurement

- Press  to stop the measurement.
- Validate with **OK**.

Note : When **STOP ?** is displayed, it is possible to press  key to back to measurement screens and keep going.

Note : It is not possible to stop the measurement as long as the first logging time (ex : DI=60) is not completed. Pressing  key will be inoperative.

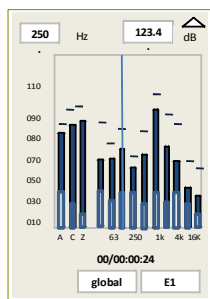
**STOP
S11 ?**

1/1 oct.

V 3-5 – Store data

At the end of the measurement, in manual mode, a screen of all results is displayed. It is then possible to :

- Accept measurements and store them : move the cursor on **Sto.** and press once on **OK** key to confirm. A banner displays the storage phase.

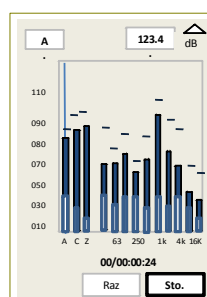


Ongoing measurement



**STOP
S11 ?**

1/1 oct.



Results screen

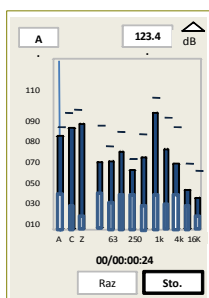


STO. S11

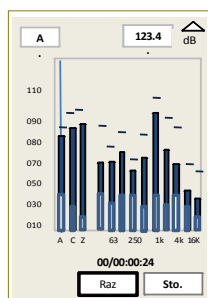
1/1 Oct.

Storage

- Reject measurements and not store them : move the cursor on **RST** and press **twice** on **OK** key to confirm. A banner displays the phase of suppression of data.



Results screen



RST active



**RAZ
S11 ?**

1/1 Oct.




**RAZ
S11**

1/1 Oct.

Deletion

V 4 – Measurement of noise equipment : NR mode

- Select **NR mode** : move the cursor with the arrows on the icon  then press **OK**.

The sound level meter works as a frequency analyzer to determinate the noise level compared to a network of evaluation curves, called NR (Noise Rating) curves as per NF S 30-010 standard.

It processes the sound signal according to two temporal modes :

- On a free **T** measurement duration left to the initiative of the user with data storage for the determination of the NR index.
- On a predefined measurement duration ranging from **3 s** to **60 s** with data storage for the determination of the NR index.

Measured and stored data at the end of the measurement :

- **LAeq, T** : equivalent continuous level of sound pressure on the T duration
- **LCeq,T** : equivalent continuous level of sound pressure on the T duration
- **LXeq, T** : equivalent continuous level of sound pressure on the T duration filtered by octave bands from 31.5Hz to 8 kHz
- **LUpk** : maximum peak level of sound pressure on the T duration
- Measurement duration in **JJ/HH:MM:SS**

Measurement duration :

- **T** left to the initiative of the user according to the manual start/stop mode (with the keyboard)
- Predefined **T** to select between the durations : **3s, 5s, 10s, 15s, 30s, 60s**.



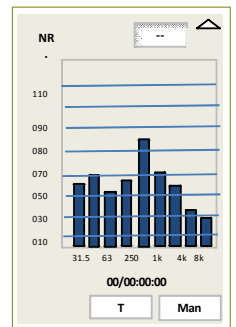
In order to have permanent control of the sound pressure level before the launch of measurement, the sound level meter calculates and displays the equivalent continuous level of acoustic pressure on a logging time of 1/8 s.

V 4-1 – Settings to perform before a measurement

1 – Select the **T mode** or the **predefined mode**

Move the cursor in **1** and select with the scrolling knob key : **T** or **3s, 5s, 10s, 15s, 30s, 60s**.

- **T mode** : by selecting **T**, the measurement begins with a manual start
Data are stored at the end of the measurement with a manual stop.
- **Predefined mode** : by selecting a value between **3s, 5s, 10s, 15s, 30s, 60s**, the measurement begins with a manual start.



1 2

2 – Select the launching mode in **2** with the scrolling knob key : **Man** (manual) – **Tim** (timer) – **I/O** (with I/O signals) :



In predefined mode of the measurement duration (3s, 5s, 10s, 15s, 30s, 60s), only the manual mode is accessible.

Tim. and I/O modes : (see page 51)

Note : current time is displayed before launching the measurement


V 4-2 – Launch the measurement

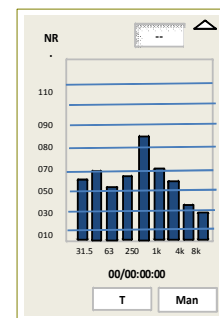
Type of launch : **Manual**

Tim. and I/O mode : (see page 51)

1 – Select the measurement duration :

Move the cursor in **1** and select with the scrolling knob key : **T** or or a predefined duration between **3s and 60s**

Press  key, the timer starts and indicates the measurement duration.



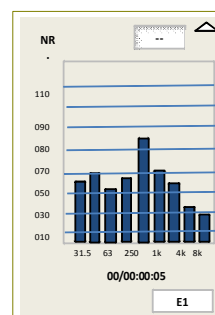
1

V 4-3 – During the measurement

During the measurement, three screens give information about the ongoing measurement. They are accessible with the scrolling knob key.

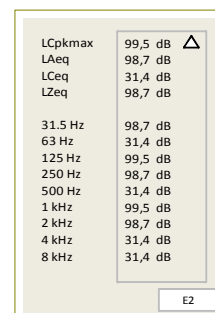
E1 : it is the main screen, it displays values and graphical representation (spectrum type) :
The different bars stand for :

- **LXeq** : equivalent continuous levels of sound pressure on the measurement duration filtered by octave bands from 31.5Hz to 8 kHz
- Measurement duration in JJ/HH:MM:SS



E2 : this screen displays the results of values that will be stored at the end of the measurement.


- **LCpkMax** : maximum peak pressure level of the ongoing measurement
- **LAeq - LCeq - LZeq** : equivalent continuous levels of sound pressure A, C and Z-weighted on the duration of the ongoing measurement.
- **LXeq** : equivalent continuous levels of sound pressure on the duration of the ongoing measurement filtered by octave bands from 31.5Hz to 8 kHz




E3 : this screen reminds the general format of the measurement session

- Date of measurement start
- Date of measurement end : not entered because measurement is still ongoing.
- Measurement time : not entered because measurement is still ongoing.
- NR measurement mode : **Mode**
- Filters by octave bands from 31.5Hz to 8kHz : **F**
- LXeq logging time : **DI**
- Frequency weighting of the peak pressure level : **Lpk**

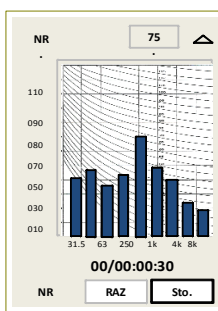
V 4-4 – Stop the measurement

- Press  to stop the measurement.
- Validate with **OK**.

Note : When **STOP ?** is displayed, it is possible to press  key to back to measurement screens and keep going.



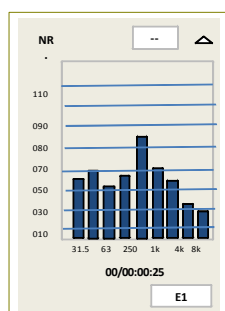
When a predefined duration (**from 3s to 60s**) has been selected, the measurement stops automatically at the end of this duration. Screen of data storage is displayed to validate or reject the measurement.



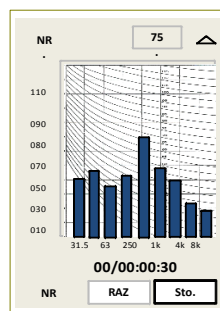
V 4-5 – Store data

At the end of the measurement, in manual mode, a screen of all results is displayed. It is then possible to :

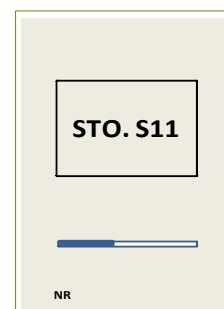
- Accept measurements and store them : move the cursor on **Sto.** and press once on **OK** key to confirm. A banner displays the storage phase.



Ongoing measurement

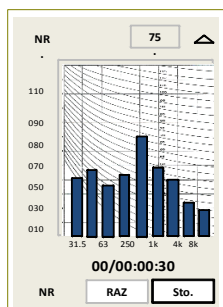


Results screen

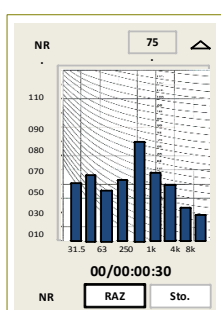


Storage

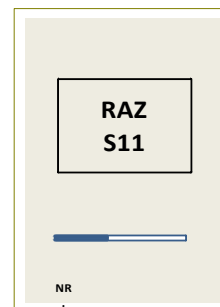
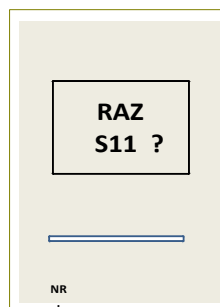
- Reject measurements and not store them : move the cursor on **RST** and press **twice** on **OK** key to confirm. A banner displays the phase of suppression of data.



Results screen



RST active

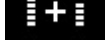


Deletion

V 5 – Calculate two sound sources

The sound level meter processes the acoustic signal of several sound sources over a time left to the free initiative of the operator. The measured value here is the equivalent continuous level over this time.

V 5-1 – Settings to perform before measurement

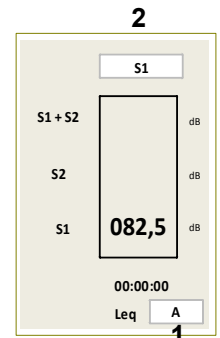
1 – Select **S1 + S2 mode** : move the cursor with arrow keys on the icon  then press **OK**.

2 – Select the frequency weighting

Possible choices are : **A** frequency weighting - **C** frequency weighting - **Z** frequency weighting (LIN).


Place the cursor with arrow keys on the area **2** and select with scrolling knob **A**, **C** or **Z**.

Note : current time is displayed before launching the measurement




V 5-2 – Make calculation of two sound sources

• Measure **S1** sound source

- Move the cursor to 3 and select **S1** with the scrolling knob key then launch the measurement with  pictogram.

- Stop the measurement when it seems representative (stabilized evolution of the L_{Xeq} value).

• Measure **S2** sound source :

- Move the cursor to 3 and select **S2** with the scrolling knob key then launch the measurement with  pictogram.

The measure will stop by itself after time T previously chosen for the measurement of the S1 source.

The equivalent continuous level calculated from the two combined sources is displayed in front of “**S1 + S2**”.

V 6 – Determine a sound source among two



The determination of a sound source among a set of two can not run unless the operator can interrupt one of the two sources, the aim being to estimate the sound level of a source without the presence of the other source.

Example : outdoor heating pump in a background noise during the day.


Estimate the sound level of a heat pump without the background noise of day, to estimate the possible nuisance of the heat pump in a noise environment less noisy as the one present the night.

V 6-1 – Perform the measurement


• Move the cursor to 3 and select “**S1 + S2**” with the scrolling knob key to measure the two sound sources.

In the example, outdoor heat pump (**S1**) in a background noise during the day (**S2**).

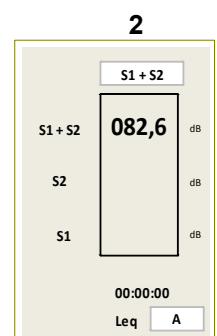
• Launch the measurement with the  pictogram.

• Stop the measurement when it seems representative (stabilized evolution of the L_{Xeq} value) with the  pictogram.

• Stop the **S1** sound source (in the example, heat pump).

• Launch the measurement of the **S2** sound source (background noise) with the  pictogram.

*Measurement of the **S2** sound source will stop by itself after time T chosen for the measurement of the **S1+S2** sound source and the **S1** and **S2** sound source level is displayed on the sound level meter.*



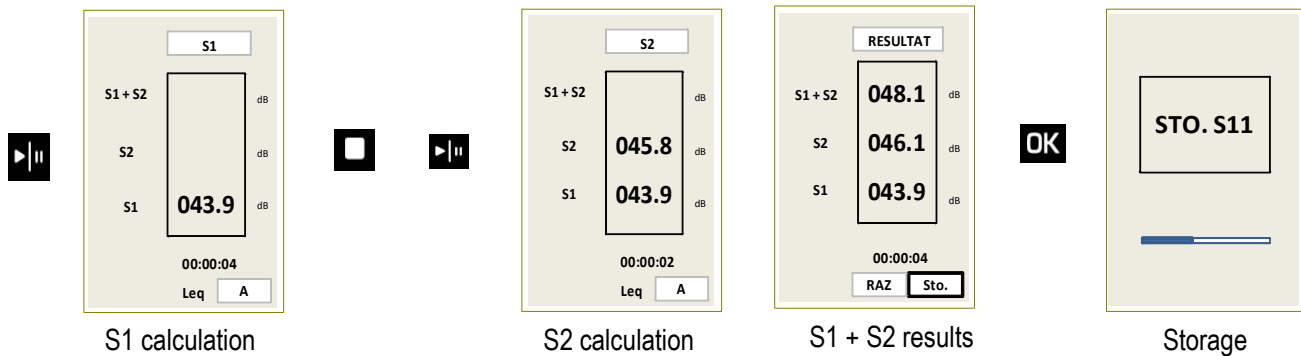
In case of improper handling and/or of calculation impossibility, result will not be displayed.

Example : S1+S2 level is lower than S1, so S2 can not be calculated. Dashes will appears on the screen instead of numbers.

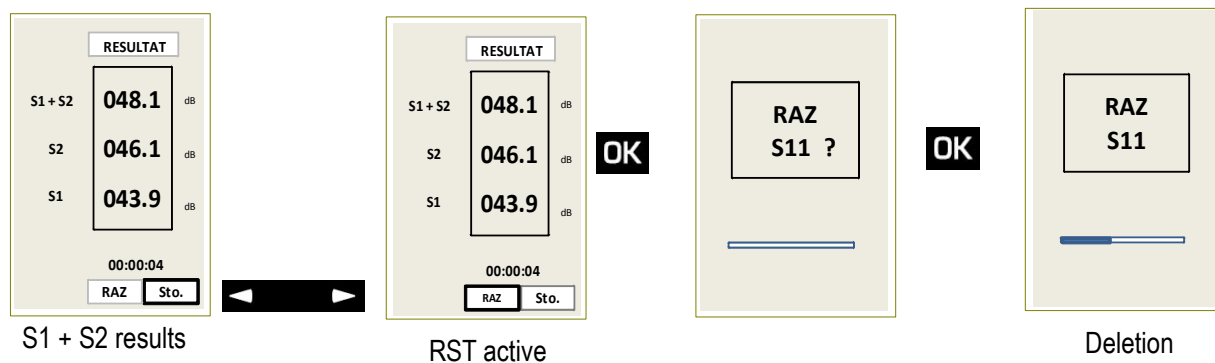
V 6-2 – Store data

At the end of the measurement, the screen of all results is displayed (example : adding of two sound sources). It is then possible to :

- Accept measurements and store them : move the cursor on **Sto.** and press once on OK key to confirm. A banner displays the storage phase.



- Reject measurements and not store them : move the cursor on **RST** and press **twice** on OK key to confirm. A banner displays the phase of data deletion.



VI – Modes of measurement launching

VI 1 - Generalities

DB300 instrument has four modes of measurement launching :

- **Immediate mode** : manual launching with the keypad.
- **Delayed mode - Tim.** : programmable launching and stop on a free duration
- **Repetitive delayed mode – Tim.** : launching from 2 to maximum 10 times of a daily programming limited to 24H59M00S.
- **I/O mode** : launching by order of an electronic signal (Example : industrial controller)

The following modes : **Delayed – Tim mode / Repetitive delayed – Tim mode and I/O mode** are related to the following measurements modes.



integrator – averager with storage sound level meter – A and C weightings



integrator – averager with storage sound level meter – A,C and Z weightings and analyser by filters of octave bands from 31.5Hz to 8kHz



Analyser sound level meter to measure the noise of equipment in correspondence with NR curves (as per NF S 30-010 standard)

Informations :

When using the instrument in analyser mode for the measurement of noise equipment in correspondence with NR curves (as per NF S 30-010) :

- Measurement start in **Tim.** mode only works for a T free duration programming and not for predefined durations (3 – 5 – 10 – 15 – 30 – 60 s) .

When 0 VDC electrical voltage of control is reached in I/O mode or generally with the delayed programming **Tim.** :

- The measurement stops after at least one elementary logging time (from 1s to 60s). The current last elementary logging time is not taking into account in data.
- The instrument saves metrological and audio data (if activated) at the end of the session

Every other start linked to a back of 5 VDC of control voltage in I/O mode or to a **Tim.** programming is performed after the end of storage (see page 33).

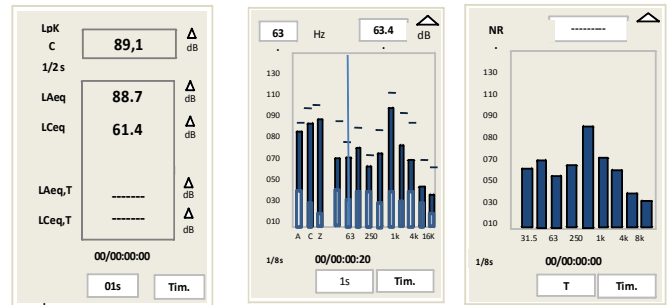
VI 2 : Immediate mode

- Press  key to launch the measurement.

VI 3 : Delayed – Tim. mode

It is possible to programme the beginning and the end of the measurement (date-time) of a free duration that can exceed several days. For example : preparing the instrument for measurement during the night.

- Select icon **Tim.** at the bottom right of the screen when set the the instrument before the measurement.
- Press **OK** to go the programming screen.



The screen of measurement programming is displayed :

- Move the cursor on the different items and set date and time with the scrolling knob key.
Beginning : date and time of the measurement beginning
End : date and time of the measurement end
- Move the cursor on the **Repeat** item to validate the value at **01** : OK appears.
- Press **OK** key.
The programming of measurement launching is performed.

DIFF.-JOUR.-REPET.	
Début	15 / 05
	09 : 15
Fin	15 / 05
	16 : 30
Repet.	1
Mém. :	OK
Alim. :	OK
OK	

The two last lines of the screen indicates :

- That the memory capacity for the number of sessions is enough (**999 max**) : **OK**
- That the power capacity allows the measurement : **OK**.

In case of incompatibility :

- **KO** is displayed instead of **OK** : in this case, empty the memory of the instrument.
- Load the battery or change batteries.
- If the **power adapter logo blinks**, it is imperative to use a power adapter.
- When the logo stops blinking, it means that the power adapter is connected.

DIFF.-JOUR.-REPET.	
Début	15 / 05
	09 : 15
Fin	16 / 05
	16 : 30
Repet.	1
Mém. :	KO
Alim. :	
OK	

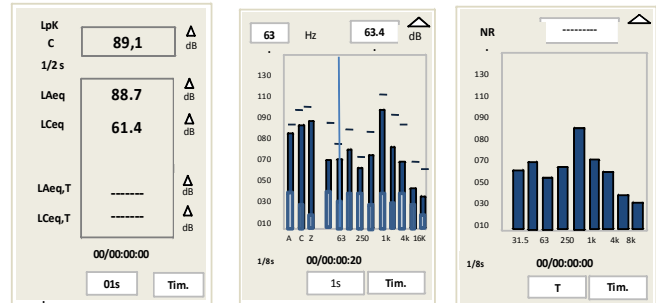
Note :

Using the delayed mode without programming the date and time of measurement beginning (current date and time still present) but by programming the date and time of measurement end, the measurement starts immediately after the validation and will stop at the programmed hour. This type of programming allows to stop the measurement and the instrument without being present.

VI 4 – Repetitive delayed mode – Tim.

It is possible to programme the beginning and the end of the measurement (date-time) on a daily duration (see page 33) that has to be repeated from 2 to 10 times the following days at the same hours. Example : following of a sound source that is marked every days of the week.

- Select the icon **Tim.** at the bottom right of the screen when set the instrument before the measurement.
- Press **OK** to go the programming screen.



The screen of measurement programming is displayed :

- Move the cursor on the different items and set date and time with the scrolling knob key.
Beginning : date and time of the measurement beginning
End : date and time of the measurement end
- Move the cursor on the item **Repeat** to programme the repetition value (from 2 to 10) : OK appears.
- Press **OK** key.
The programming of measurement launching is performed.

DIFF.-JOUR.-REPET.	
Début	15 / 05
	09 : 15
Fin	16 / 05
	06 : 30
Repet.	5
Mém. :	OK
Alim. :	
OK	

Note : in case of exceeding of the daily duration of programming, the instrument will correct automatically the date and time of the end of measurement.

The two last lines of the screen indicates :

- That the memory capacity for the number of sessions is enough (**999 max**) : **OK**
- That a power adapter must be used

In case of incompatibility :

- **KO** is displayed instead of **OK** : in this case, empty the memory of the instrument.
- If the **power adapter logo blinks**, it is imperative to use a power adapter.
- When the logo stops blinking, it means that the power adapter is connected.

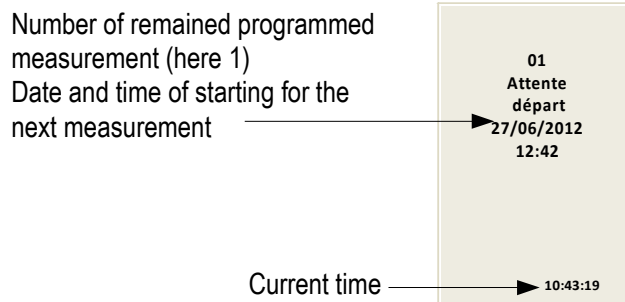
DIFF.-JOUR.-REPET.	
Début	15 / 05
	09 : 15
Fin	16 / 05
	06 : 30
Repet.	5
Mém. :	KO
Alim. :	
OK	

VI 4-1 – Delayed mode : Tim. – waiting for measurement


The principle of a free delayed measurement or of a repetitive daily delayed measurement requires a temporal management of the instrument :

- The programming has been prepared and validated
- A screen displays the waiting mode. This screen is displayed a few moments then it turns off.
- The instrument is in sleep mode to save battery capacity. It is reactivated a few moments before the measurement.
- The measurement is performed, data are stored, the instrument activates its sleep mode until the following measurement and so on.

Screen details :




Important : it is possible at any time to stop the waiting mode or the sleep mode and launch the measurement.

In waiting mode : just press the  key. The measurement starts immediately.

In sleep mode :

- Press **on/off** key to reactivate the instrument.

The waiting screen is displayed.

- Press  key to start the measurement.

In all cases, there is only the launching of measurement that is modified, programming of end and daily repetitive remain the same as the ones initially scheduled.

VI 4-2- Delayed mode : Tim. – interrupt the programming

It is possible to interrupt at any time the waiting or sleep modes and stop the current mode.

In waiting mode :

- Press **Esc** key. The screen of timer exit is displayed.
- Select **Yes** with the arrows then press **OK**.

In sleep mode :

- Press **on/off** key to reactivate the instrument.

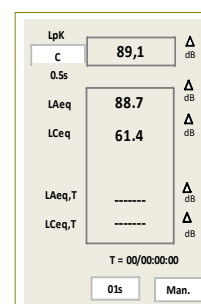
The waiting screen is displayed.

- Press **Esc** key. The screen of timer exit is displayed.
- Select **Yes** with the arrows then press **OK**.

The programming is canceled and the instrument backs to the screen of initial measurement.



Yes
OK



VI 4-3 - Delayed mode : Tim. – Data storage and audio files

At the end of each measurement, files of metrological data and audio files (if the function is activated) are stored on the SD card. This is how it works :

Simple delayed mode (01 repetition) : storage is made at the end of the measurement. The instrument stays active and the storage time depends on the importance of metrological data and of the number and size of audio files.

- Metrological data : brief time
- Audio file : it can last from a few seconds to 40 min

At the end of the storage, the instrument turns off.

Repetitive delayed mode (from 2 to 10 repetitions) without Audio function : storage is made at the end of the measurement if the daily duration does not exceed 23H59M00S. The last minute is for the storage of metrological data.

- At the end of the storage, the instrument activates its sleep mode and starts again at the next period, etc....

Conclusion : all periods will start at the same time, but the daily durations will be limited to **23H59M00S**.

Repetitive delayed mode (from 2 to 10 repetitions) with audio function : storage is made at the end of the measurement if the daily duration does not exceed 23H20M00S. The last 40 minutes are for the data storage.

- At the end of the storage, the instrument activates its sleep mode and starts again at the next period, etc....

Conclusion : all periods will start at the same time, but the daily durations will be limited to **23H20M00S**.

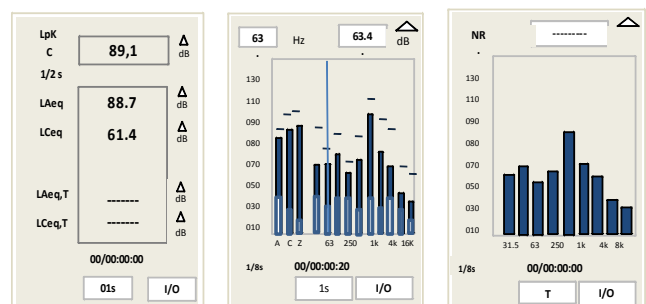
Note : if there is no audio file, then the maximum daily duration will be 23H59M00S

Additional information : for acoustic studies on successive days, it is advised to perform a single measurement of several days or weeks and to reorganize in daily periods with the operating software.

VI 5 - I/O mode

It is possible to launch and stop the measurement with an external electronic command. The signal comes from every electronic system that can provide a continuous electrical signal of 5V maximum (called TTL) - Ex : controller for the monitoring of industrial process.

- Select **I/O** icon at the bottom right of the screen when set the instrument before the measurement.
- Connect at the bottom of the instrument in the **I/O 1** plug a 2.5 mm of diameter Jack cable.



Principle :

A measurement launching according to the I/O mode is performed once an electrical voltage of maximum 5 VDC appears on the **I/O1 In**. It stops once this same electrical signal backs to 5 VDC (see page 58 for the feature).




Schema

VII – Read the stored files

After a controlled stopping of the measurement and a data storage, it's possible to see on the screen measurement dataset results.

VII 1 – Access to files

- Press  menu key then go to **Read** then press **OK**.

Information of the last stored file is displayed.

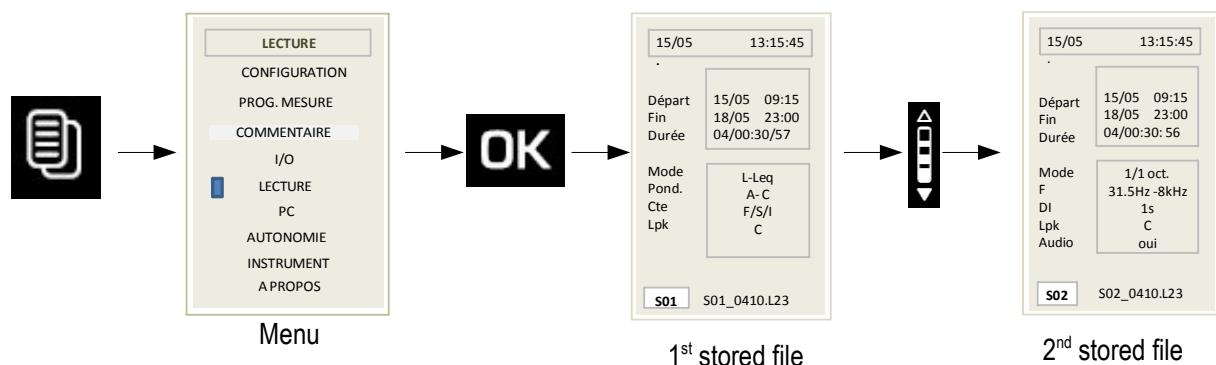
In order to make easier its identification, the screen displays the entire configuration of the measurement :

- **The mode** : L-Leq, Leq-St, 1/1 oct, NR, S1 + S2.
- **According to the mode** : the different frequency and temporal weightings or filters, the logging times, date and duration...

- Scroll stored files with the scrolling knob key.

Each file is identified by an order number (**type S001**) and a file name (format : **S001_1811.L23**). This file name will be displayed uploading to a computer.

When the file has be identified by its identification number, press OK key to view the different results screens.



Press **Esc** key to quit this file and back to file selection main screen.

Press **Esc** another time to back to main screen of the instrument.

VII 2 – Read data of the file

VII 2-1 – L-Leq mode file

When the file has been identified by its identification number :

➤ Press **OK** to go to E1 screen which remains the measurement configuration.

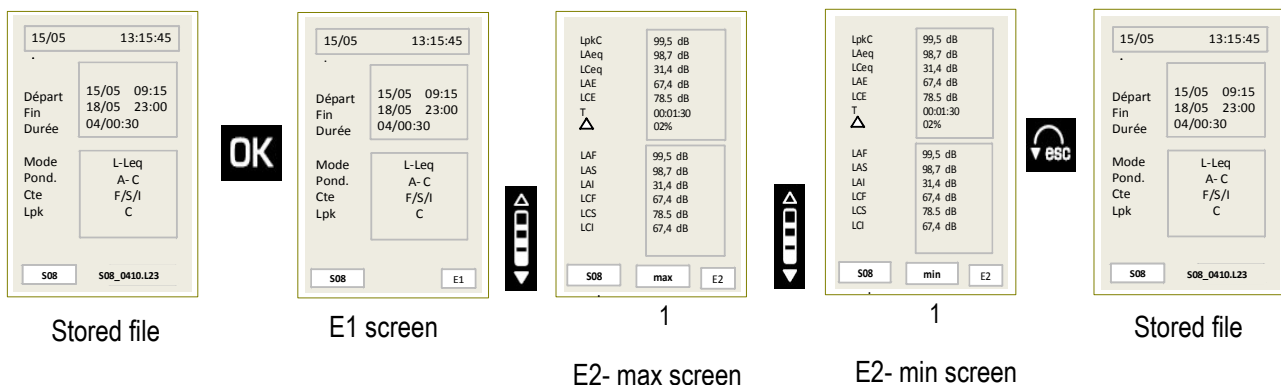
- Date of measurement start
- Date of measurement end
- Measurement time expressed in **DD / HH: MM: SS**.
- Measurement mode : **L-Leq**
- Frequency weighting for L and Leq : **Weig.**
- Time weighting for L : **Cst**
- Frequency weighting of the level of peak pressure for L : **LpK**

With scrolling knob key, go to **E2** results screen :

- **LUpk** : level of maximum peak of sound pressure on the measurement time.
- **LAeq** : equivalent continuous level of sound pressure A-weighted on the total measurement duration
- **LCeq** : equivalent continuous level of sound pressure C-weighted on the total measurement duration
- **LAE** : A-weighted sound exposure
- **LCE** : C-weighted sound exposure
- **T** : measurement duration in JJ/HH:MM:SS
- **%** : percentage of saturation of the input stage
- **LAF - LAS - LAI** : max or min levels of sound pressure A-weighted according to the time constants : Fast (F) – Slow (S) – Impulse (I)
- **LCF - LCS - LCI** : max or min levels of sound pressure C-weighted according to the time constants : Fast (F) – Slow (S) – Impulse (I)

➤ Select **Max** or **Min** in 1 with the scrolling knob key to go from maximum values to minimum values.

➤ Press **Esc** key to quit this file and back to main screen of files selection.



VII 2-2 – Leq-St mode file

When the file has been identified by its identification number :

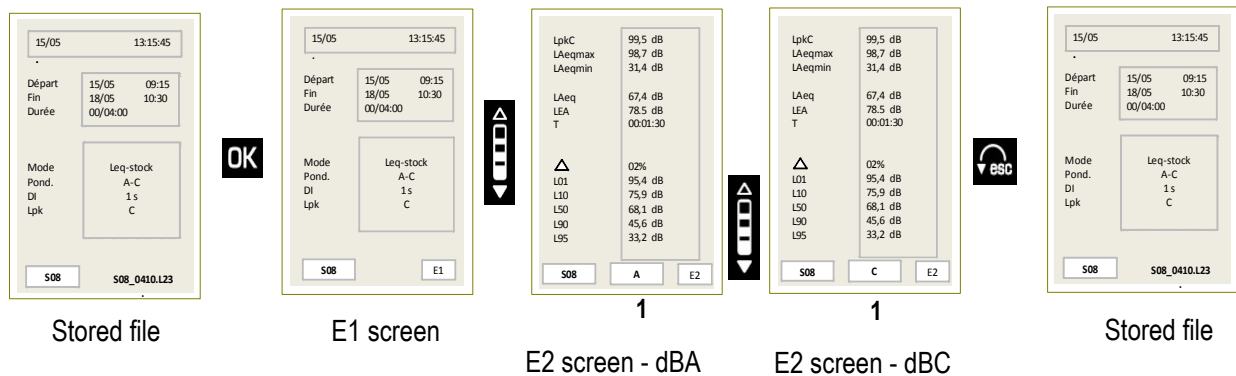
➤ Press **OK** to go to E1 screen which remains the measurement configuration.

- Date of measurement start
- Date of measurement end
- Measurement time expressed in **DD / HH: MM: SS**.
- Measurement mode : **mode**
- Frequency weighting for the Leq : **Weig**.
- Elementary integration time for Leq : **DI**
- Frequency weighting of the level of peak pressure for L : **LpK**
- Audio recording : **Audio**

➤ With scrolling knob key, go to **E2** screen for the A and C weighted results :

- **LUpk** : level of maximum peak of sound pressure on the measurement time.
- **LAeqM** : maximum value of the equivalent continuous level of sound pressure A-weighted of all the elementary integration time
- **LAeqm** : minimum value of the equivalent continuous level of sound pressure A-weighted of all the elementary integration time
- **LAeq** : equivalent continuous level of sound pressure A-weighted on the total measurement duration
- **LAE** : A-weighted sound exposure
- **T** : measurement duration in JJ/HH:MM:SS
- **%** : percentage of saturation of the input stage
- **Statistical indices** : L01 -L10 – L50- L90- L95

➤ Select **A** or **C** in 1 with the scrolling knob key to go from A-weighted values to C-weighted values.



➤ Press **Esc** key to quit this file and back to main screen of files selection.

VII 2-3 – 1/1 oct file mode

When the file has been identified by its identification number :

➤ Press **OK** to go to E1 screen which remains the measurement configuration.

- Date of measurement start
- Date of measurement end
- Measurement time expressed in **DD / HH: MM: SS**
- Measurement mode 1/1 oct : **Mode**
- Filters by octave bands from 31.5Hz to 8kHz : **F**
- Elementary integration time for LXeq : **DI**
- Frequency weighting of the peak pressure level : **Lpk**

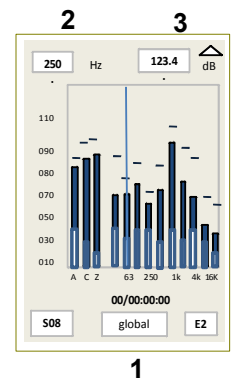
E2 is the main screen that displays the values and a graphical representation (spectrum type) :

The different bars are for :

- **LAeq - LCeq - LZeq** : equivalent continuous levels of sound pressure A, C and Z-weighted.
- **LXeq** : equivalent continuous levels of sound pressure filtered by octave bands from 31.5Hz to 8 kHz
- **Measurement duration** in JJ/HH:MM:SS

Read values :

- Move the cursor in **1** with the arrow keys and select with the scrolling knob key between **global – Max - min**
- Move the cursor in **2** with the vertical arrow keys then select with the scrolling knob key the weighting value or the filter value and read the result displayed in **3**.
A vertical line is moving on the screen and is superimposed on the bar corresponding to the selected weighting or filter.

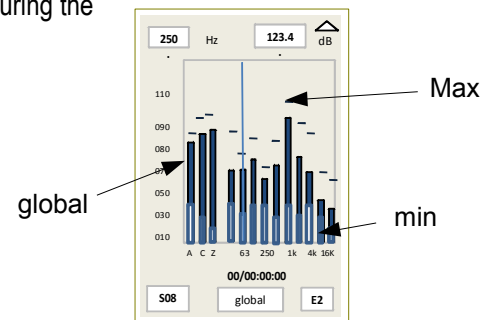


Do the same to read the different values according to the selection in **1 : Global – Max - min**

- **Global** : weighted and filtered equivalent continuous levels on the measurement duration
- **Max** : weighted and filtered maximum equivalent continuous levels reached during the measurement (base : DI elementary integration time)
- **Min** : weighted and filtered minimum equivalent continuous levels exceeded during the measurement (base : DI elementary integration time)

These different values are shown as :

- An horizontal line for the maximum level
- A full colored bar for the global level
- An empty bar for the minimum level

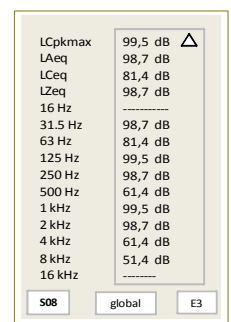


E3 : this screen displays the results of current values that will be stored at the end of the measurement

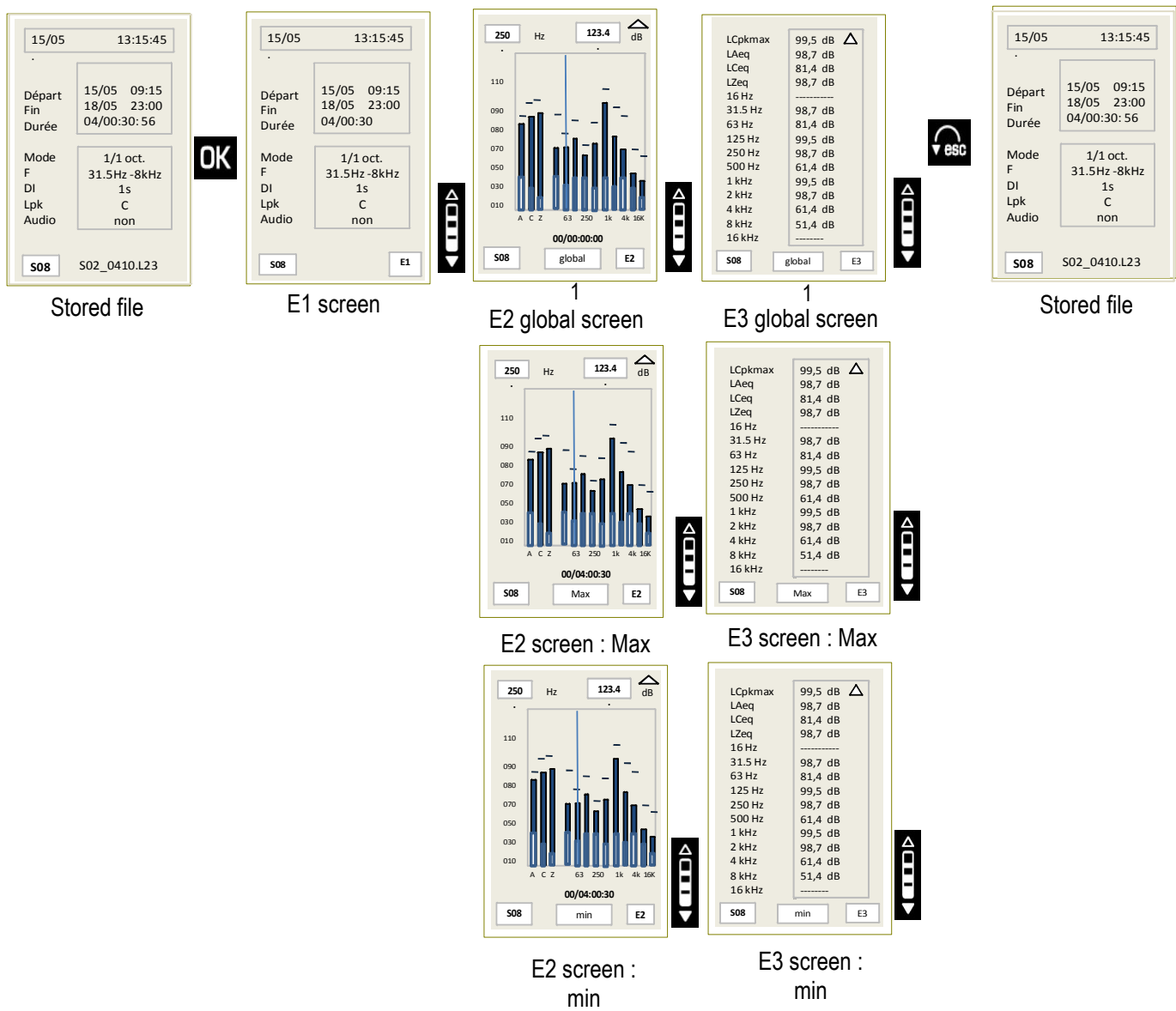
- Move the cursor in **1** with the arrow keys and select with the scrolling knob key between **global – Max - min**

Read the different values according to the selection : **global – Max - min**

- **Global** : weighted and filtered equivalent continuous levels of the measurement
- **Max** : weighted and filtered maximum equivalent continuous levels reached during the measurement (base : DI elementary integration time)
- **Min** : weighted and filtered minimum equivalent continuous levels exceeded during the measurement (base : DI elementary integration time)



Main synoptic :



> Press **Esc** key to quit this file and back to main screen of files selection.

VII 2-4 – NR noise equipment file

When the file has been identified by its identification number :

➤ Press **OK** to go to E1 screen which remains the measurement configuration.

- Date of measurement start
- Date of measurement end
- Measurement duration
- Measurement mode NR : **Mode**
- Filters by octave bands from 31.5Hz to 8kHz : **F**
- Elementary integration time for LXeq : **DI**
- Frequency weighting of the peak pressure level : **Lpk**

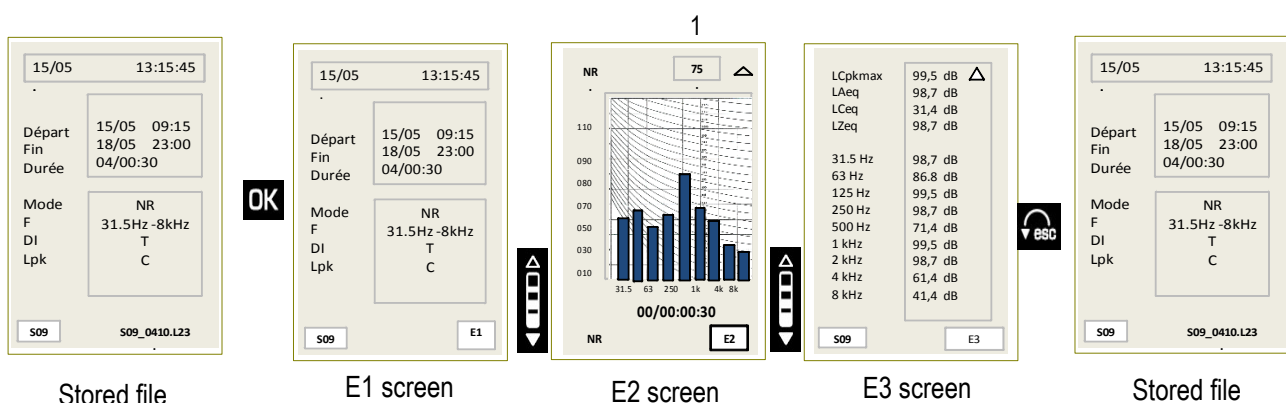
E2 : is the main screen that displays the graphical representation (spectrum type) :

The different bars are for

- **LXeq** : equivalent continuous levels of sound pressure filtered by octave bands from 31.5Hz to 8 kHz
- **NR** : value in **1** is for the NR index as per NF S 31-010 standard
- **Measurement duration** in JJ/HH:MM:SS

E3 : this screen displays results values that are stored in the memory.

- **LCpkMax** : maximum peak pressure level noted during the measurement
- **LAeq - LCeq - LZeq** : equivalent continuous levels of sound pressure A, C and Z-weighted on the measurement duration.
- **LXeq** : equivalent continuous levels of sound pressure on the measurement duration filtered by octave bands from 31.5Hz to 8 kHz



➤ Press **Esc** key to quit this file and back to main screen of files selection.

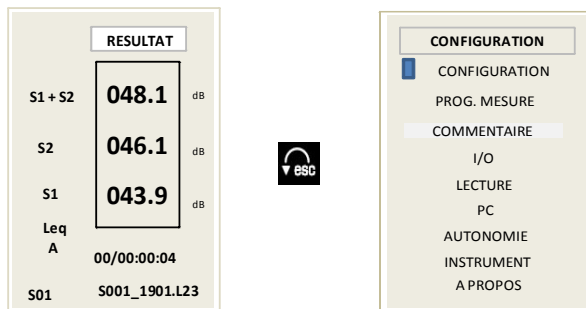
VII 2-5 – S1+S2 mode file

When the file has been identified by its identification number, you access to the main single screen of results.

It shows :

- **S1 + S2** : equivalent continuous level of the two sound sources
- **S2** : equivalent continuous level of **S2** sound source
- **S1** : equivalent continuous level of **S1** sound source
- The frequency weighting of the equivalent continuous level
- The measurement duration for the calculation of the equivalent continuous level

➤ Press **Esc** key to quit this file and back to main screen of files selection.



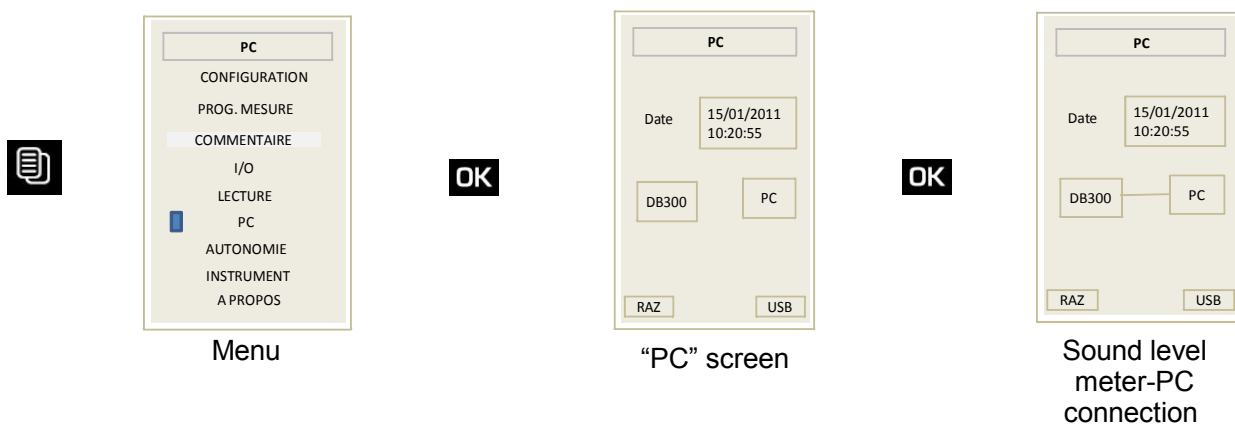
VIII – Transfer files to a PC

VIII 1 Transfer

This function allows to transfer data towards a computer through a USB cable. The operating software must be installed on the computer.

- Connect the instrument to the PC through the USB cable.
- Go to “**PC**” screen of the sound level meter : from the menu icon, select **PC** then press **OK**.
- Press **OK** key again to activate **USB** icon.

The connection to the PC is shown on the screen of the sound level meter.



After the transfer, turn off the instrument or quit PC screen by pressing **Esc** key.

The instrument is considered by the computer as a removable disk. Files transfer can be performed according to two ways :

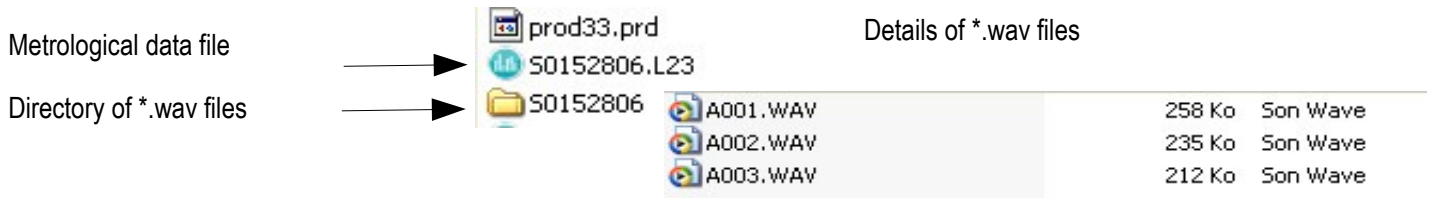
- With the **LDB23** software (see user manual of the software)
- Directly by activating the files manager of the operating system of the PC (for example : copy/paste function, send to,...) to move files of the removable disk (DB300) to the repository directory for the classification of the measurements.

VIII 2 – Files format and structure on the micro SD card

Files have a generic termination : Example : S005_2409.L23

With **S005** : order number ; **2409** : day month ; **.L23** : extension

Audio files are in a same directory which have the name of the metrological data file.



In case of audio files recording, the measurement file and the *.wav audio files are in a same sub-directory when transferring to a PC with the software.

LDB23 software (supplied with **DB300**) does not allow an automatic processing of *.wav files (see page 45).

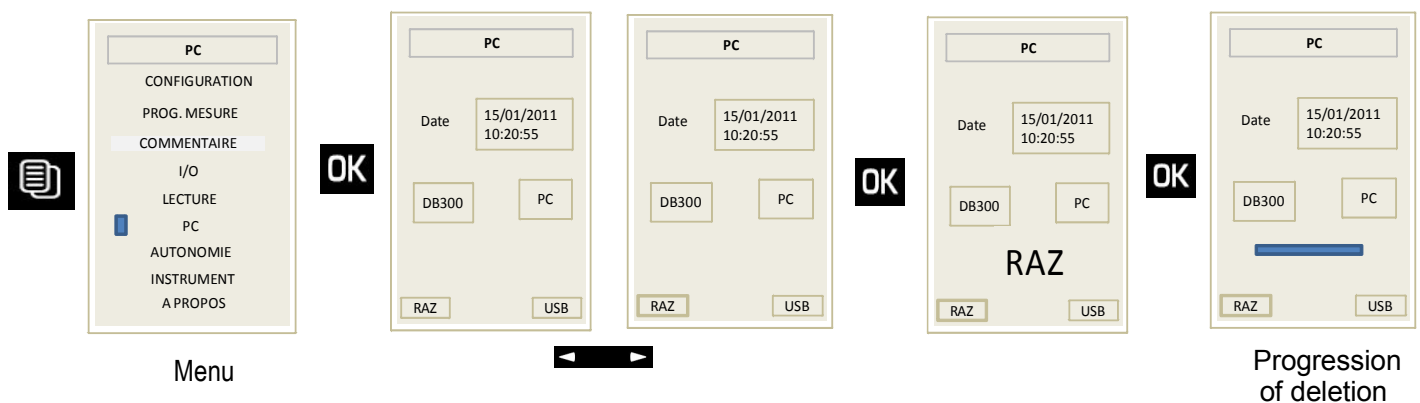
IX – Reset memory

After datasets storing thanks to the transfer to computer, it's possible to erase sound level meter memory. There are two methods :

- Through sound level meter (see below)
- Through computer (see LDB23 software user manual)

Through the sound level meter :

- Go to “**PC**” screen of the sound level meter : from the menu icon, select **PC** then press **OK**.
- Move the cursor to **RST** with left arrow key.
- Press **OK** key, **RST** blinks.
- Press **OK** key to delete all data, progress bar is displayed.



All the sessions in the sound level meter will be permanently deleted.

> Press **Esc** key to quit this file and back to MENU main screen.

X – Audio recording function

When studying a measurement and after the visualization of the temporal evolution with the software, some results can be surprising and can raise questions :

- What is the sound source of the this level ?

In order to help you, **DB300** instrument has a “**Audio Recording**” function that is automatically activated when a previously set threshold is exceeded.

This detection on threshold is about :

- The equivalent continuous level A-weighted on an elementary integration time of 1 second : **LAeq,1s**
or
- The maximum peak pressure level C or Z-weighted (according to the programmed weighting : usually C) : **LCpk**

This function is only available with the two following modes :



Integrating-averaging sound level meter with storage – A and C weightings



Integrating-averaging sound level meter with storage – A, C and Z weightings and analyser by filters of octave bands from 31.5Hz to 8kHz

The principle of recording after a threshold detection suggests that sound source that caused the threshold exceeding can become inactive after the detection. Therefore, **DB300** instrument systematically performs a sliding recording of **Tgl** duration (4 s) that is retained after detection of an exceeding.

- The recording keeps going on the total duration of the exceeding and after sub-overshoot of the threshold, and on the same **Tgl** duration previously used.
- This process allows an “**Audio recording**” of the sound source that causes the exceeding and makes easier its identification.

As it is an help for the recognition of sound sources and in order to optimize material resources, the audio recording format on the SD card is defined as follows :

- Accuracy : 16 bits
- Sampling : 12 kHz


DB300 instrument having a wide measurement dynamic, 107 dB it is likely that the re-listening with a computer does not allow an easy identification according to the selected detection threshold.


To optimize the listening, the audio recorder incorporates an adjustable digital gain from 24 to 48 dB with a step of 6 dB. This adjustment has no incidence on the measurement and interferes on audio files only.

So, according to measurement conditions and selection criteria, this adjustment allows to adjust the reduced dynamic of audio listening (computer + ear + environment = about 50 dB) to this more extensive of **DB300** instrument (107 dB)

Important : to make more comfortable the re-listening on PC, we advise the use of an external amplified speaker system to the PC.

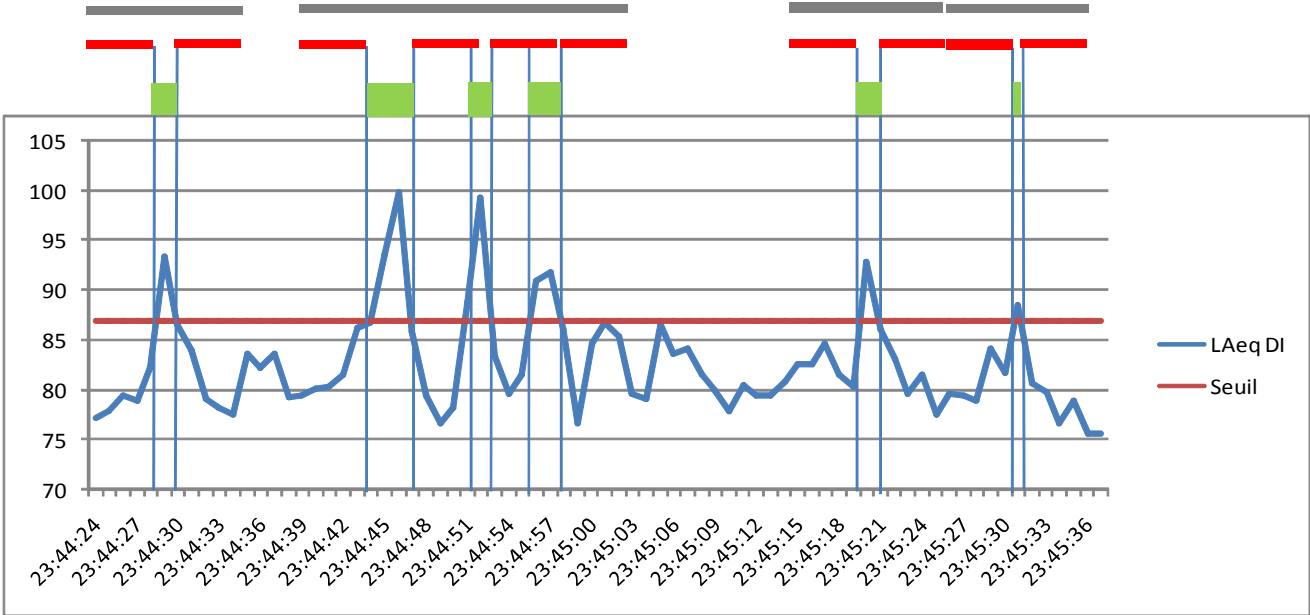
X 1 - Temporal synoptic

 Area of exceeding of sound level on threshold : ex : 87 dB

 **Tgl** : pre and post recording set at 4 seconds for supervision of audio exceeding on threshold

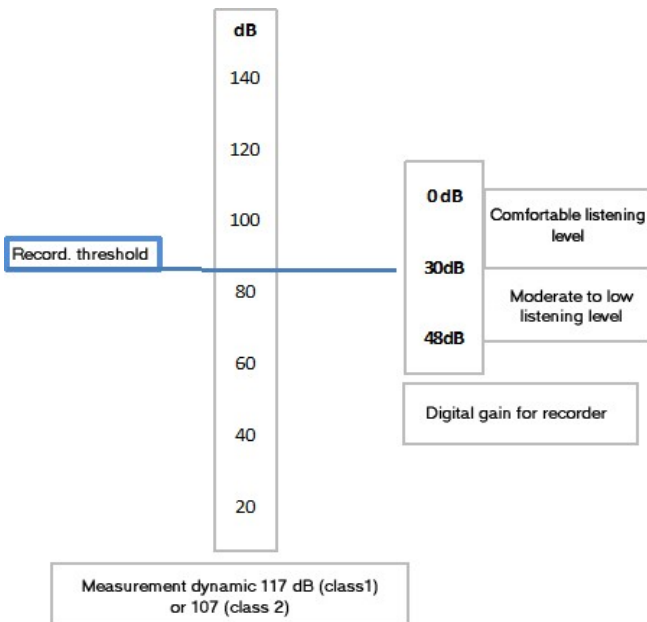
Final recording : pre and post exceeding + exceeding

VERY IMPORTANT : when audio function is activated, the DI duration of elementary integration for calculation of the LAeq, LCeq and LXeq equivalent continuous level is automatically set at 1 second.



X 2 - Synoptic of the management of the recording dynamic

The gain is initially set at 30 dB.



Selection of a detection level for an audio recording : it must be on the planned measuring range 30-137 dB.

Setting of the digital gain for audio recording : the recorder dynamic is set in factory at **30 dB**.

This means that the recorder has 30 dB in storage in peak pressure value beyond the selected detection threshold in LAeq or LCpk.

Example : detection level = LAeq 1s : 105 dBA

Sound sources higher to this level are recorded without distortion if and only if the maximum peak level does not exceed : 105+30 = 135dB peak.

Generally, sound sources have some high peak factors, pretty much from 20 to 30dB. That's why it is not possible to set the gain at a value lower than 24dB. However, in situations where sound sources are elaborated with very high peak factors, it is possible to choose the digital gain beyond 30 dB between : **36-42-48dB**

During programming, **DB300** instrument displays maximum and minimum peak pressure levels properly recordable according to the selected criterion (reference threshold and digital gain).

PROG. MESURE	
Filt.10Hz	non
Lpk	C
Audio	oui
Ref	LAeq
Seuil	85 dB
Gain	30 dB
Max	109.0 dB
min	59.0 dB

Listening comfort :

It is recommended to keep the factory setting which is 30dB. Eventually, after experience on site, it is possible to bring it to 24dB. In this case, the re-listening allows an correct identification for the 4 seconds before and after the adjustable threshold exceeding.

Note : to make more comfortable the re-listening on PC, we advise the use of an external amplified speaker system to the PC.

X 3 – Use of audio recording

From **MENU** screen, select “**PROG.MESURE**”

- Press **OK** to validate.
- Move the cursor on “**Audio**”.
- Select **YES** in reverse video.

Move the cursor to select successively :

- The used reference for the detection : **LAeq** or **Lpk**.
- The threshold beyond which the recording starts. This threshold can be set with the scrolling knob key in step of 1 dB and concerns either the **LAeq** or the **Lpk** according to the previous selection.
- The gain of the recording chain adjustable from **24 dB** to **48 dB** in step of **6 dB**. According to this selection, maximum and minimum recordable values of peak pressure levels correctly calculated are displayed.

CONFIGURATION
CONFIGURATION
PROG. MESURE
COMMENTAIRE
I/O
LECTURE
PC
AUTONOMIE
INSTRUMENT
A PROPOS

PROG. MESURE	
Filt.10Hz	non
Lpk	C
Audio	oui
Ref	LAeq
Seuil	85 dB
Gain	30 dB
Max	109.0 dB
min	59.0 dB

PROG. MESURE	
Filt.10Hz	non
Lpk	C
Audio	oui
Ref	LAeq
Seuil	85 dB
Gain	30 dB
Max	109.0 dB
min	59.0 dB

Note : Durations of pre and post recordings supervising the exceeding are not adjustable and fixed at 4 seconds.

Measurement in progress :

Different recordings are performed automatically without intervention and without affect metrological calculations. Total recording time available being limited (see page 59), be selective to select the detection threshold value in order to not use too quickly memory space and get repetitive and insignificant recordings.

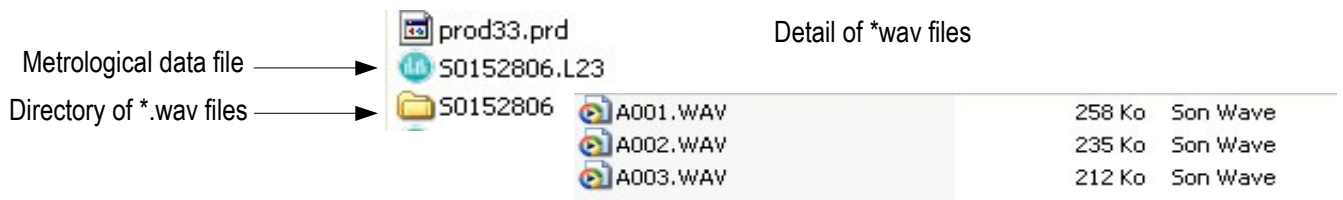
Audio files :

All recordings are linked to the corresponding metrological file and saved as ***.wav** audio format on the micro SD card. During data transfer on a PC, the software (LDS300 or LDB300) processes all the files and the re-listening of files to help about sound sources recognition.

Listening of the audio files without software :

Audio files can be processed by a software (LDS300 or LDB300). However, if you don't have software, it is possible to listen to the ***.wav** files with any kind of software suitable with ***.wav** and PC . It is possible to listen to the recording but it is not possible to link them with metrological data.

Audio files are on the same directory and its name is the name of the metrological data file.



Memory space :

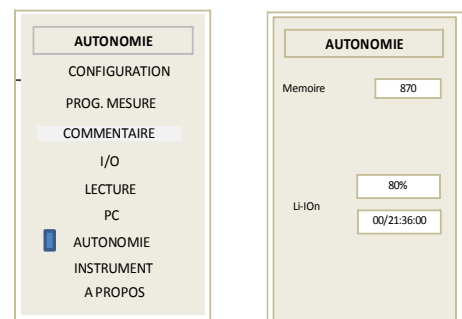
Available memory on micro SD card is divided into 2 areas : the 1st one contains the metrological files and the 2nd one contains audio files for re-listening. Before starting a new measurement, it is advisable to check the remaining measurement capacity expressed in number of event timers and battery capacity.

For that, from **MENU** screen :

- Select **AUTONOMIE**.
- Press **OK** to validate.
- Check the number of sessions and the remaining battery life.
Ex : 870 sessions and 80% of remaining battery life in JJ/HH/MMSS

In case of shortage, all data in the micro SD card must be deleted :

- With the keypad (see page 41)
- With a software

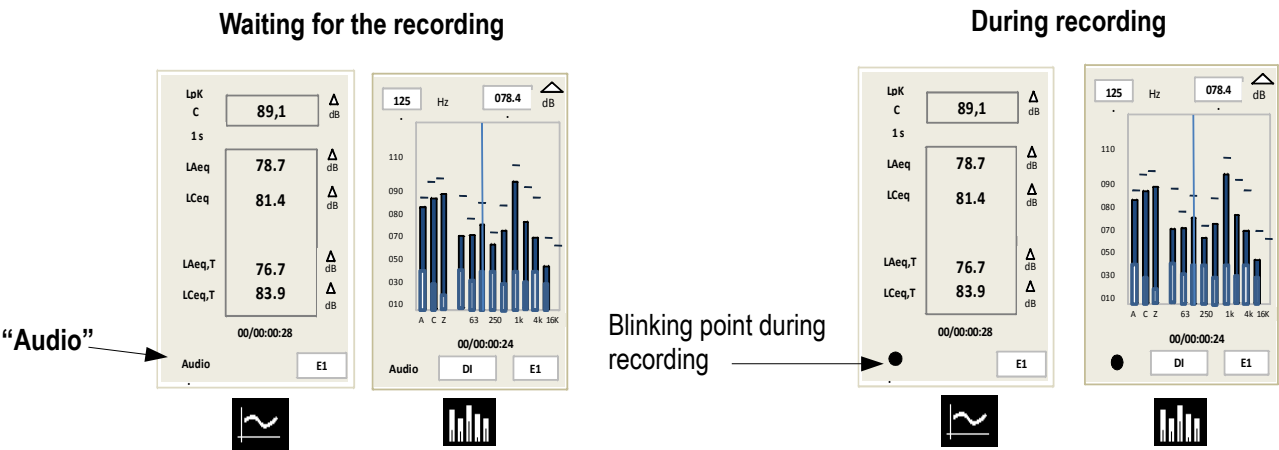


Only the person in charge of the measurement has the responsibility to process recordings.

X 4 – Measurement in progress – Data reading

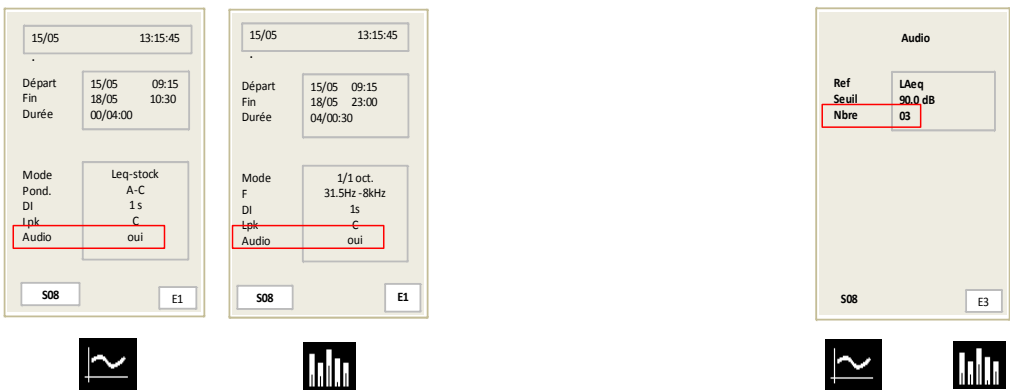
Audio function generates an additional screen control which completes the screen chain during measurement or at the end for reading of results.

During measurement :
“Audio” appears in the different screens, and during recording a blinking point replaces “Audio”.



Reading :

In the E1 screen which remains the measurement configuration, “Yes” is indicated in front of “Audio”.
An additional screen indicates the number of recordings performed during the measurement.



XI – Direction for use and maintenance of the sound level meter

XI 1 – Use warnings

The sound level meter is a measuring instrument using the latest technologies. To maintain accuracy and required reliability, avoid any shock of the housing and the microphone and keep them away from humidity and corrosive steams.

XI 2 – Direction for use

For each application, you should check measurement technique and conditions in order to get valid and coherent results. The way of using the instrument has at least as much importance on result than device quality. You have to take into account at least the following parameters :

- The sound level meter is designed for a free-field acoustic measurement
- The instrument is held with reached out arm for short-time measurement or positioned on a tripod for long-time measurement.
- The axis of the instrument must face sound source, do not interfere with your own body or with any close material item (furnitures, machines, low wall, trees, etc...).
- Protect the instrument from bad weather, and use as much as possible the windscreen. It protects the microphone and minimizes during measurement the disruptive effects linked to air currents.
- Calibrate the instrument regularly with a suitable calibrator CAL200 or CAL300 type.

XI 3 – Calibration

A calibration must be performed regularly with a suitable calibrator.

- Insert the adapter ring according to the diameter of the microphone sound level meter.
- Place the calibrator on the microphone, until the microphone reaches the end of the ring. Do this move slowly and smoothly so as not to damage the microphone.
- Put vertically the sound level meter and the calibrator.
- Turn on the calibrator.
- Wait for a moment a correct level of acoustic pressure of the calibrator : for example 94.0 dB .
- You can begin the procedure of calibration of the instrument as explained below.



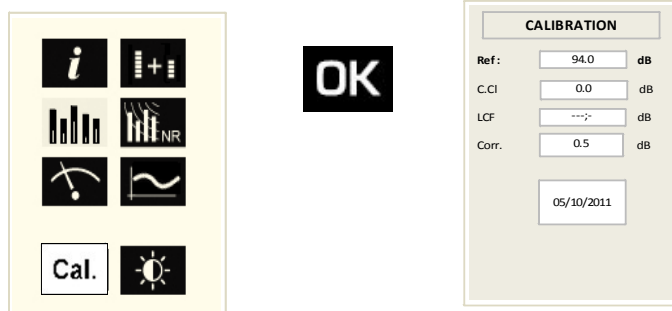
> Reminder : free-field coefficient

An acoustic reference source, a calibrator or a pistonphone supplies a level of acoustic pressure. During a free-field measurement, phenomena of diffraction caused by the microphone and the housing come to affect the measurement. This perturbation is minimized if the microphone is far from the housing.

For this sound level meter, the induced free-field perturbation is very low, and it is not necessary to introduce a free-field correction.

> Operating mode

- From starting screen, select **Cal.** with arrows keys then press **OK**.



The instrument displays a new screen :

- Check that the reference value **Ref** : is equivalent to the value of the used calibrator and to the value of free-field correction (C.CI) (0.0 dB for the sound level meter).

- Put the operating calibrator on the microphone.

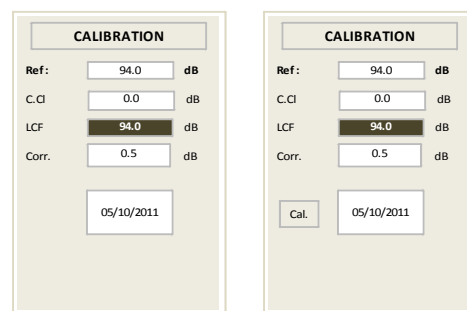
- Put the cursor with the arrow keys on **LCF**.

The instrument automatically adjusts the gain of the chain to get the coincidence of the displayed levels in **Ref** and **LCF**.

Once the measurement is stabilized, "**Cal.**" : press **OK** key to validate.

The correction value of the gain and the calibration date are memorized and visible for the next calibration.



- Press **Esc** key to quit this function.



This correction can not exceed **+/- 2 dB**. If the correction exceeds **+/- 2 dB**, the coincidence values in **Ref** and **LCF** is not obtained. Reasons of this difference shall be identified (defective microphone, level value of the calibrator not adapted...).

> Modification of the reference value :

The reference value preset during the manufacturing process shows that we use calibrator with rated value of 94 dB at 1000 Hz. If the proposed reference is not the one of the available calibrator, follow the instruction below :

- Move the cursor on **Ref**. With arrow key  adjust to the desired value dB per dB with the scrolling knob key .

This new value is memorized until the next change.



This new value must be set between 70 dB and 130 dB.

XI 4 – Maintenance

The sound level meter conception allows a reduced maintenance which consists in changing batteries and cleaning the instrument with a slightly cloth. A particular attention must be paid to the microphone sensor, which is the element the most sensitive of the metrological chain.

XI 5 – Regular checking

Like most measuring instruments, it is strongly recommended to regularly control and calibrate the sound level meter. Return to the manufacturer each year will provide necessary metrological traceability.

XI 6 – Replace the battery by a batteries pack

In case of impossibility to load the battery, it is sometimes unavoidable to replace it by a batteries pack. The batteries life will decrease from 8 to 10 hours in continuous operating.

- **Turn off the sound level meter.**
- Remove the battery (do not forget to disconnect the cable).
- Connect the battery respecting its insertion direction (mechanical keying of security).
- Slide the battery into the housing.
- Close the back hatch.

XI 7 – Replace the batteries (if equipped)

- **Turn off the sound level meter.**
- Return the instrument.
- Open the back hatch.
- Remove the 3 batteries and replace them respecting the meaning.
- Put the back hatch.

XI 8 – Load the battery

Use a USB power adaptor which serves as a charger.

It's also possible to connect the sound level meter to USB port of a running computer. Battery will load according available current at the USB output, about 500 mA.

A time of about 8 to 10 hours is needed to obtain a full charge.

Meaning of warning light located next to USB port :

- **Red warning light** : ongoing load
- **Green warning light** : completed load
- **Blinking red /green warning light** : battery is disconnected, check the connection or contact customer support
- **Orange warning light after a load period** : load or battery trouble : disconnect then connect again the charger. Red warning light must be turned on to finish loading. If orange warning light appears, contact customer support.

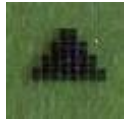
XI 9 – AC adapter

For measurements over long periods, if possible, use the AC adapter supplied with the instrument. Battery pack (or optional battery) must stay inside the instrument in order to preserve measurement in case sudden failure of the sector.

XII – Running information

XII 1 – Over-range

Under conditions of measuring range excess, defined at **140.2 dB**, Z peak, an over-range icon appears. Its displaying differs with the measuring mode selected :



- **L-Leq mode :**

- LXY : it comes fleetingly for each exceeding. It stays visible at least 1s for a better readability.
- LXpk and Leq : warning light appears during the first overload of the input stage, it stays visible during all the measurement.

- **Leq-St – 1/1 oct – NR modes :**

- Leq 0.5s : warning light appears for each overload of input stage, it stays visible during the integration time of 0.5 s, then switches off and so on...
- Leq, DI and LXpk : both warning lights appear for each input stage, they stay visible during the integration time (from 1/16 s to 60s), then switch off and so on...
- Leq, T : warning light appears during the first overload of the input stage, it stays visible until the end of the measurement.

- **S1+S2 mode :**

- Warning light appears at the first overload of input stage for each measurement, it stays visible until the end of the measurement.

- **% of presence of overloads of the input stage :**

This information can be required during a mid and long term measurement, when overload indicator is displayed. Its presence does not provide information about the frequency of occurrence of the overload but the percentage calculation provides a level of alert about measured and displayed levels by the instrument.



A LXY minimum value may have been overloaded, for example a level of 110 dBA with a high peak factor, while a LXY maximum value of 125 dBA with a low peak factor can not be overloaded.

XII 2 – Power supply

When the instrument is equipped with alkaline batteries or with a battery, a symbol informs the user about the remaining power. In case of low power, less than one bar on the pictogram, the pictogram starts blinking, the instrument stops the measurement, saves the results and switches off.



During a mains connection for long term measurements, the pictogram automatically changes to represent a plug.



In case of sudden failure of the sector, the measurement is not saved. To avoid this trouble, let the batteries or the rechargeable battery inside the instrument.

XII 3 – Inputs / outputs / I/O programming

XII 3-1 - I/O 1 In

Adapted to launch a measurement from an external electronic order of 0-5 VDC maximum. Compatible with the following measurement modes :



Integrating-averaging sound level meter with storage – A and C weighted



Integrating-averaging sound level meter – A and C weighted and analyser by octave bands filters from 31.5Hz to 8 kHz with storage



Analyser sound level meter for the measurement according to the NR curves (as per NF S 30-010 standard)

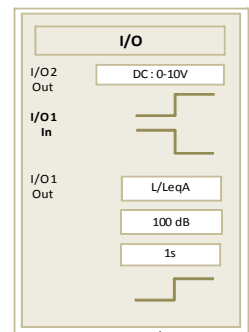
When the instrument is used in analyser mode for the measurement noise equipment in correspondence with NR curves (as per NF S 30-010 standard) :

- Measurement beginning in **Tim** mode works only for a programming of free duration **T** and does not work for preset durations (3 - 5 - 10 - 15 - 30 - 60 s) .

XII 3-2 - I/O 1 Out

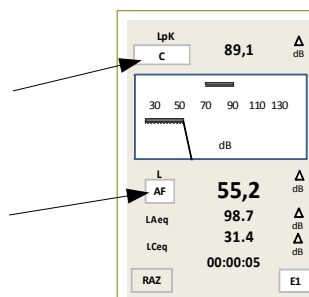
It is the output detection in relation to a preset sound level and concerns **the measurement modes below**. A high level appears in output when the value of sound pressure level reaches and exceeds some value. Settings are made in the menu **I/O**.

- Select the type of level : **L/Leq** or **Lpk**
- Set the desired detection level with the scrolling knob key (by step of 1 dB).
- Select a time-delay of stability of the continuous signal of detection after being below the sound level (from 1s to 10s by step of 1s).



Conventional sound level meter and average-integrating with storage

- For **LpK** selection : the detection comes from the peak pressure level C or Z-weighted according to the measurement programming.
- For **L/leq** selection : the detection comes from the level of sound pressure LXY indicated under “**L**”

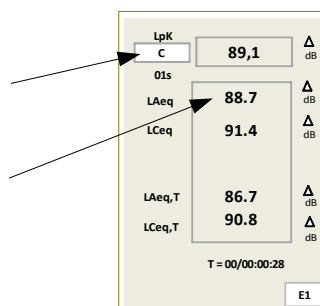


- The sampling rate of the value is fixed at 16 Hz, that is a comparison to LXY threshold every 63 ms.



Integrating-averaging sound level meter with storage – A and C weighted

- For **LpK** selection : the detection comes from the peak pressure level
- For **L/leq** selection : the detection comes from the **LAeq** equivalent continuous level only

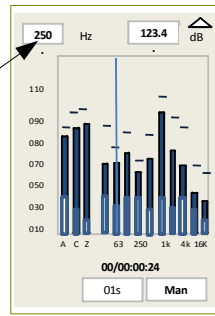


- The comparison is made for each duration of elementary integration (from 1/16°s to 60s)



Integrating-averaging sound level meter – A and C weighted and analyser by octave bands filters from 31.5Hz to 8 kHz with storage

- For **LpK** selection : the detection comes from the peak pressure level
- For **L/Leq** selection : the detection comes from the **LXeq** equivalent continuous level chosen in the selection of reading values



- The comparison is made for each duration of elementary integration (from 1/16°s to 60s)

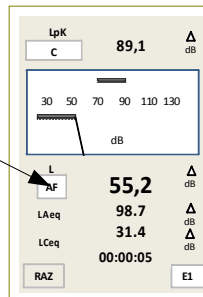
XII 3-3 - I/O 2 Out

It is the analog output 0-10VDC of the selected value **L/Leq** only, no peak pressure and concerns the **measurement modes** below.



Conventional sound level meter and average-integrating with storage

- For **L/Leq** storage : DC output is for the level of sound pressure LXY indicated under “L”

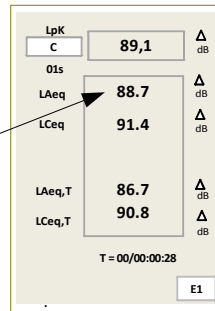


- The sampling rate of output is fixed at 16Hz, that is a DC value every 63 ms.



Integrating-averaging sound level meter with storage – A and C weighted

- No **LpK** selection possible
- For the **L/Leq** selection : DC output corresponds to the **LAeq** equivalent continuous level only

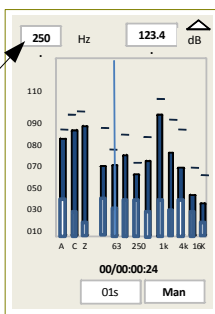


- DC output is for each duration of elementary integration (from 1/16°s to 60s)



Integrating-averaging sound level meter – A and C weighted and analyser by octave bands filters from 31.5Hz to 8 kHz with storage

- No **LpK** selection possible
- For the **L/Leq** selection : DC output corresponds to the **LXeq** equivalent continuous level chosen of the selection of reading values.



- DC output is for each duration of elementary integration (from 1/16°s to 60s)

XIII – Technical features

XIII 1 – Microphone

The instrument is equipped with an electret microphone with an integrated preamplifier of standardized diameter of ½ inch. Fixed at the top of the sound level meter, it gives to the group (microphone and housing) free field features compatible with standards.

XIII 1-1 – Sheet

- Brand : KIMO - AME23
- Type : condenser with electret
- External diameter of the grid : 13.2 mm (½ inch)
- Nominal sensitivity for preamplifier output : 20mV/Pa
- Equivalent capacity : about 10pF

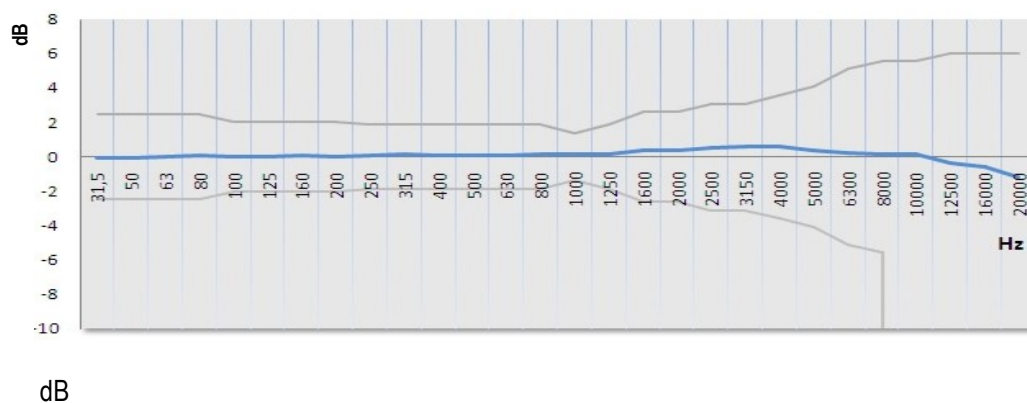
XIII 1-2 – Normal frequency response in free-field

Free-field frequency response type – template class 2 NF EN 61672-1



XIII2 – Windscreen

B-DB23 windscreen creates modifications of free field response that comes in addition to initial features of the microphone on the housing. The whole stays compliant to requirements class 2 reference standard. So, when using the windscreen, there is no need to take into account a correction term free field.



B-DB23 free field response –
template class 2 NF EN 61672-1

XIII 3 – Preamplifier PR23

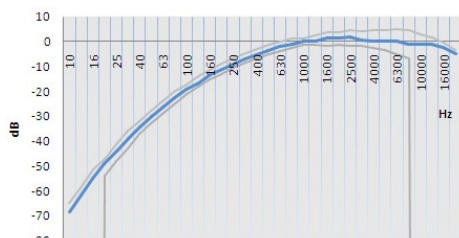
The preamplifier is an essential system to adapt the microphonic sensor to the input electronic of the sound level meter.

Features	Preamplifier PR23	Unit
Supply voltage	24	V
Supply current	<1	mA
Input resistance	>30	GΩ
Input capacitance	0,38	pF
Nominal gain	-0,01	dB
Bandwidth (-3dB)	3-100 k	Hz
Bandwidth with extensions from 3 to 10 m (-3dB)	3-22k	Hz
Noise (A-weighted)	<3	μV
Size : L - Diam	87	mm
Weight	< 55	gr

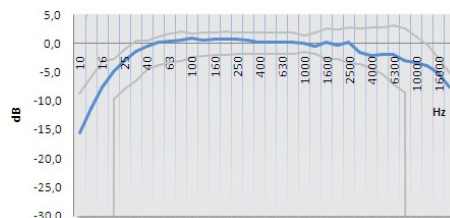
XIII 4 – A – C – Z weightings and free field response

The frequency response of the whole **microphone / windscreen / A, C or Z weightings (sound level meter)** is in compliance with standards in a given template according to the accuracy class of the instrument : **NF EN 61672-1 / class 2**.

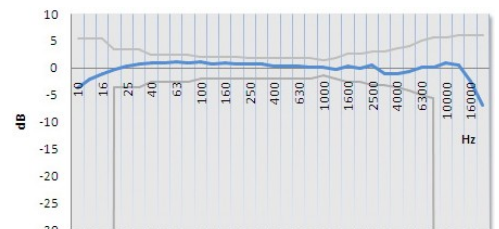
Plots types of free field sound level meter are given below :



**Free field response
with A weighting**



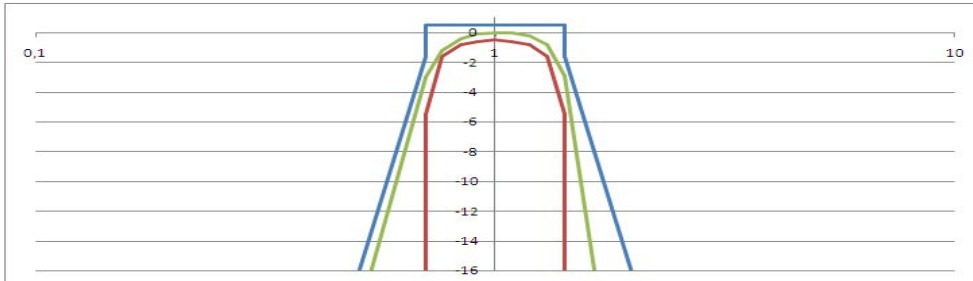
**Free field response
with C weighting**



**Free field response
with Z weighting**

XIII 5 – Filters by octave bands from 31.5 Hz to 8 kHz

The sound level meter has filters to perform spectral analysis. These filters are in accordance with standards in a given template according to the accuracy class of the instrument : **CEI 61260 / class 2**.



Relative response type of the filter by octave band as per CEI61260- template class 2 standard

XIII 6 – Measured and displayed values

- Sound pressure level A and C frequency weighted and temporally weighted according to times constants Slow, Fast and Impulse. Ex : **LAF**
- Maximum sound pressure level A and C frequency weighted and temporally weighted according to times constants Slow, Fast and Impulse. Ex : **LAFMax**
- Minimum sound pressure level A and C frequency weighted and temporally weighted according to times constants Slow, Fast and Impulse. Ex : **LAFmin**
- Peak pressure level C or Z frequency weighted. Ex : **LCpK**
- Equivalent continuous level of sound pressure A, C or Z frequency weighted or filtered by octave bands from 31.5 Hz to 8 kHz on a T measurement duration. Ex : **LXeq,T or LXT**
- Equivalent continuous level of sound pressure A, C or Z frequency weighted or filtered by octave bands from 31.5 Hz to 8 kHz on a DI elementary measurement duration. Ex : **LXeq,DI**
- Equivalent continuous maximum level of sound pressure on a DI elementary measurement duration measured on the entire measurement. Ex : **LXeq,M**
- Equivalent continuous minimum level of sound pressure on a DI elementary measurement duration measured on the entire measurement. Ex : **LXeq,m**
- Exposure level to noise A, C or Z frequency weighted on a T measurement duration related to a reference duration of 1 s. Ex : **LAE**

Statistical indices :

Definition : When the noise level is fluctuating, the distribution of the measured levels can be characterized by statistical indices. These indices are statistically calculated from the time evolution of the noise level measured on site. These levels correspond to the sound pressure level X weighted which is exceeded during N% of the considered time interval. It is noted LN.

Therefore, the L1 statistical index corresponds to the noise level exceeded during 1% of the time of observation, L50 during 50% of the time.

The calculated indices are : **L01 – L10 – L50 – L90 – L95**

XIII 7 – Metrology

XIII 7-1 – Main features

DB300/2 sound level meter	Conventional mode	Integrator-averager mode
Electromagnetic compatibility – CE marking	As per 89/336/CEE guideline and product standards	
Standards	NF EN 61672-1 (2003)- NF EN 60651 (1994) (1995)	NF EN 61672-1 (2003)- NF EN 60804 (2000) – CEI 61260 (1995)
Accuracy class	2	
Reference		
Pressure level	94dB	
Frequency	1000 Hz	
Caliber	30-137 dB	
Direction	0°: microphone axis	
Measuring range		
A-weighted	30-137 dB	
C-weighted	35-137 dB	
Z-weighted	35-137 dB	
Peak channel measuring range	83-140 dB	
Resolution	0.1 dB	
Sound referred to input	Compatible with the linear range	
X frequency weightings	A – C – Z	
Filters by octave bands	31.5Hz – 63Hz – 125Hz – 250Hz – 500Hz – 1kHz – 2 kHz – 4 kHz – 8 kHz	
Y frequency weightings	Lente (F), Rapide(S), Impulse (I)	
Overload indicator (min)	140.5 dB	
Adjustable elementary integration duration of the LXeq for storage		1/16s, 1/8s, 1/4s, 1/2, 1s, 2s, 3s, 5s, 10s, 15s, 30s, 60s
Integration duration – Start/Stop (max) order		unlimited
LXN statistical indices	Calculation based on LXY or LXeq, DI stored data, rounded up to the next dB on a dynamic of 107 dB	
Clock accuracy	Better than 0.01 %	
Reference environment	23°C – 50% HR – 1013 hPa	
Operating environment	From -10°C to +50°C / 650 hPa at 1080 hPa / from 25% to 90% HR	
Storage temperature	From 0°C to +50°C	
Size (L x l x e)	270 x 70 x 40 mm	
Weight (battery include)	335 gr	
Fixing	Fixation on the back of the instrument for tripod	

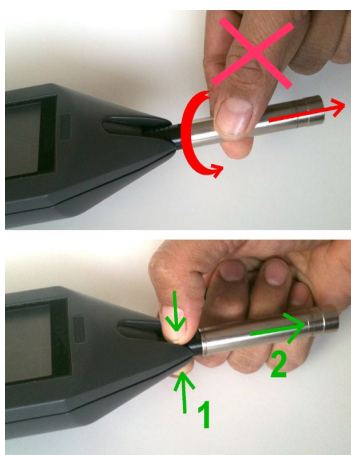
XIII 8 – Plugs and connections

XIII 8-1 – Removable preamplifier PR23

It is often indispensable to remove the preamplifier from the sound level meter to connect it on an extension.

The preamplifier is fixed on the sound level meter with a Push-pull mechanism.

This mechanical protection avoids any unwanted removal of the preamplifier or of the extension.

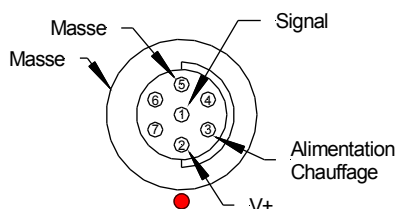


To remove the preamplifier, proceed as follows :

Do not turn or pull the body of the amplifier.

Take the black part between your thumb and forefinger and pull firmly.

To reintroduce the preamplifier, put it in position in the plug with the red mark positioned toward the back on the housing. Push in it. A click confirms the proper connection.



Wiring of the input connection 7 points (on sound level meter) :

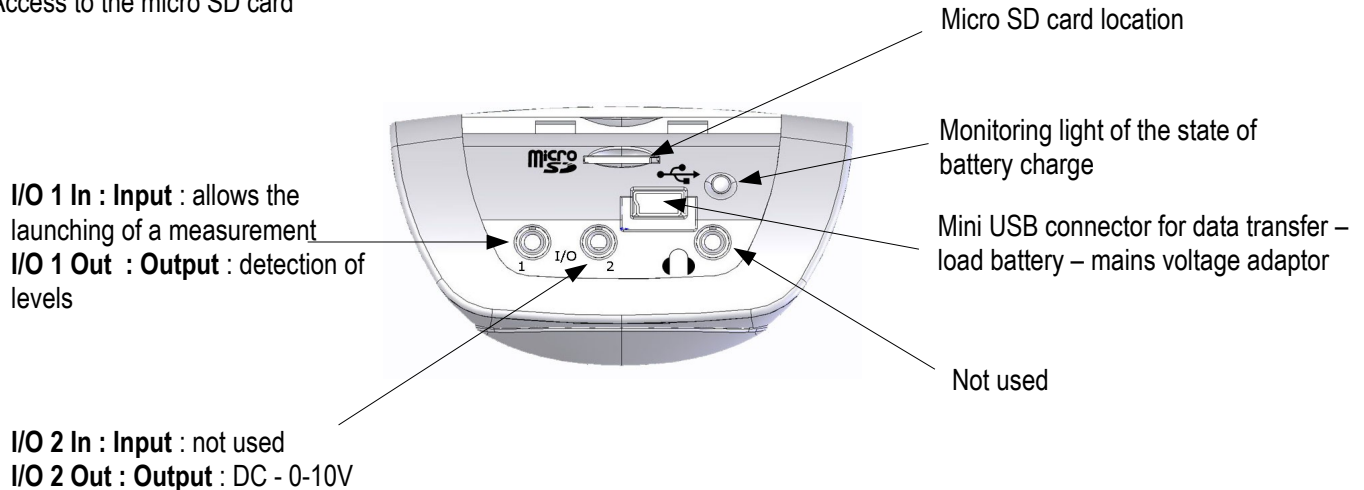
- 1 – Signal
- 2 – V+ power supply : 24 Volts DC
- 3 – Heating power supply : Not active
- 4 – Not connected
- 5 – Power supply ground
- 6 – Not connected
- 7 – Not connected

Plug body : linked to the ground

XIII 8-2 – Plugs

Located under the breastplate in soft rubber, the different plugs and connections allow to :

- Communicate with external items : I/O interface
- Load the battery and/or power supply
- Access to the micro SD card

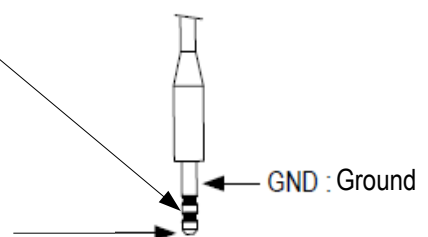


XIII 8-3 – I/O interface

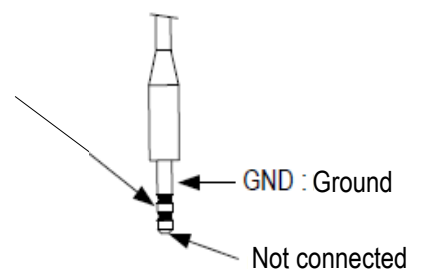
I/O 1 In - input : start-stop control for measurement :
TTL level maximal 5V – input impedance > 15 kΩ – jack : 2,5 mm diameter



I/O 1 Out- output :to activate alarm - maintains high state after detecting a LX or planned LXeq level . Variable time selected from 1s to 10s by 1s steps.
TTL level 3.3 V – input impedance < 100 Ω - jack : 2.5 mm diameter



I/O 2 Out : DC output : 0-10 Volts – input impedance < 100 Ω - jack : 2.5 mm diameter
Dynamic range : 0-137dB
Step : 0,073 mV/dB
Accuracy : ± 0.5 dB



XIII 8-4 – Transfer plug / load / mains voltage adaptor

This plug is for data transfer, battery load (optional) or power. It's a mini USB format.

- **Data transfer** : USB mode
- **Data Format** : proprietary
- **Mains supply – charger** : type universal USB format – ref : **AS-123**
PRI : 100V-240V-60/50Hz – 150 mA
SEC : 5V - 1000mA - 5VA

XIII 9 – Memory and storage autonomy

- **Memory** : micro SD card. Storage capacity can be divided into **999 sessions** .

- **Minimum capacity** : micro SD Card – **2GB**

The opposite table shows the measurement duration (1 session) according to the logging time DI for the storage in **1/1 oct** mode.

Logging time DI	Maximum duration measurement (in hour)	Maximum duration measurement (in day)
1 s	3240	135
½ s	1620	67
¼ s	810	33
1/8 s	405	16
1/16 s	200	8

For logging times greater than 1s, the maximum measurement duration is related to the obtained result with 1 second :

EX : DI = 15 s Maximum measurement duration = 135 days x 15/1



In the event of a reset of the memory by the sound level meter or through the software LDB23, all the memory is erased.

XIII 10 – Audio recording capacity

The audio recording brings information to identify sources and the correspondence with the measured sound levels. It is characterized by a frequency sampling and an accuracy expressed in number of bits. The result is a certain recording capacity.

Sampling	Pre and post recording	Accuracy	Recording capacity (HH:MM:SS)
12 kHz	4 s	16 bits	00:45:00

XIII 11– Power and operating autonomy

Measurement autonomies linked to power supply are given for an operating at 20°C and with the backlight off. Beware of declining capacity of the battery or batteries for measurement at low temperature.

- **Batteries pack** : 3 alkaline batteries 1.5V – LR6/AA type

Autonomy (20°C) : **<8H in continuous**

- **Battery** : rechargeable Li-Ion type : 3.7 V – 4400 mAh.

Caution : Li-Ion battery is a delicate element. Take care when manipulating or storing.

Autonomy (20°C) : **> 24H in continuous**

- **Mains supply – charger** : type universal USB format – ref : AS-123

PRI :100V – 240V - 60/50Hz – 150 mA

SEC : 5V - 1000mA - 5VA

Autonomy : unlimited, depending on memory capacity of the measurement (see table above).



When a connection to a PC for data transfer, the USB computer delivers a voltage of 5V DC 500mA under. This power supply has priority over the battery pack or battery that is recharged through this power supply.

XIV – Packaging and accessories

XIV 1– Supplied with

The sound level meter is supplied in its transport case with its microphone and preamplifier, a battery and a batteries pack (3 x LR6/AA), a USB charger, a windscreen, a USB cable, a CD-ROM with LDB23 software and user manuals. A calibration certificate is also supplied.

XIV 2– Optional

- Acoustic calibrator class 2 : CAL200 - Acoustic calibrator class 1 : **CAL300**
- Telescopic tripod : **PPCX**
- Jacks cables I/O interface : on request
- Extension for preamplifier : on request

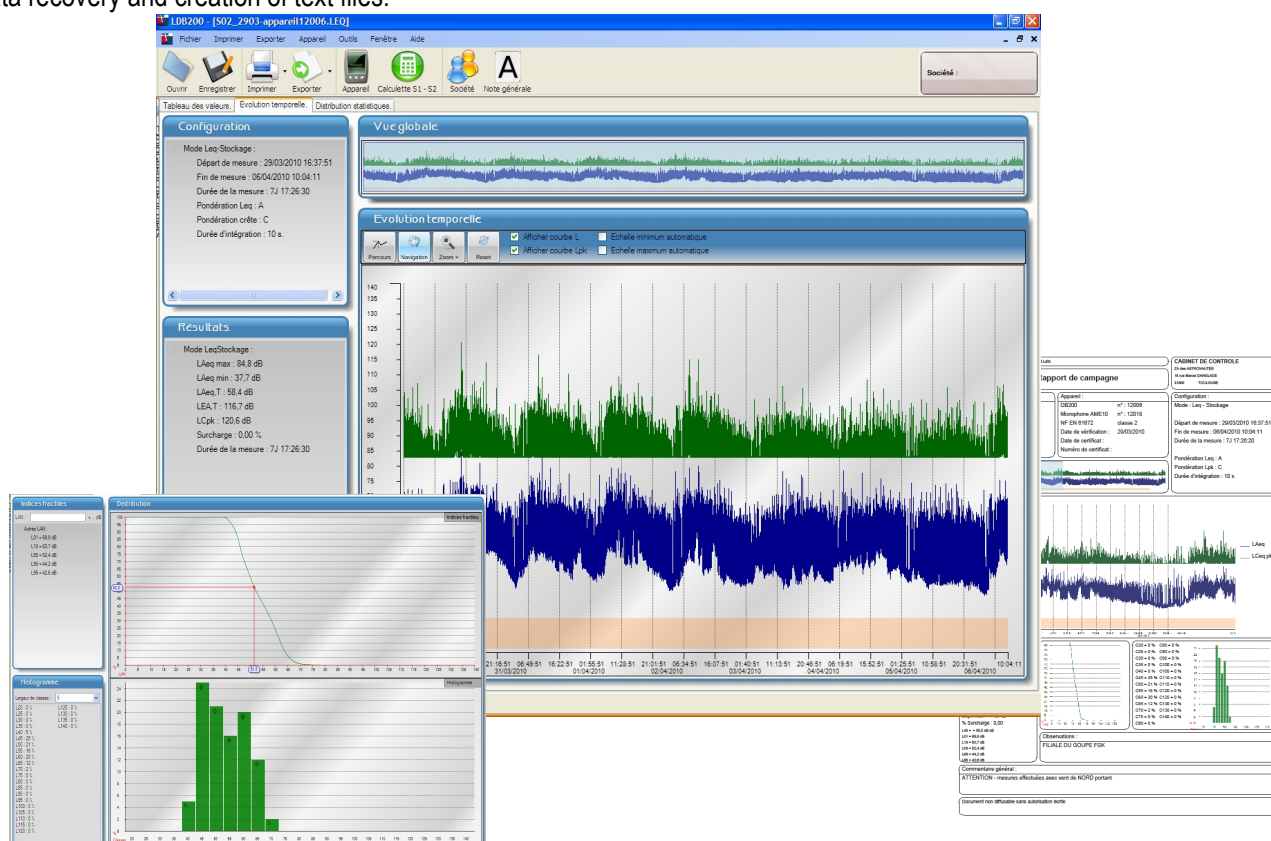
XV – LDB23 software

Supplied with the sound level meter, **LDB200** software allows the configuration, data recovery and exploitation stored in the memory of the instrument.

Easy to use, it requires a smaller learning and allows immediate management of data.

Main functions :

- Visualization and results of the different measurement mode
- Zoom function for more detailed study of a period
- Statistical distribution of data
- Formatting and editing of measurement report.
- Data recovery and creation of text files.



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